Student Medicine

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Student Medicine

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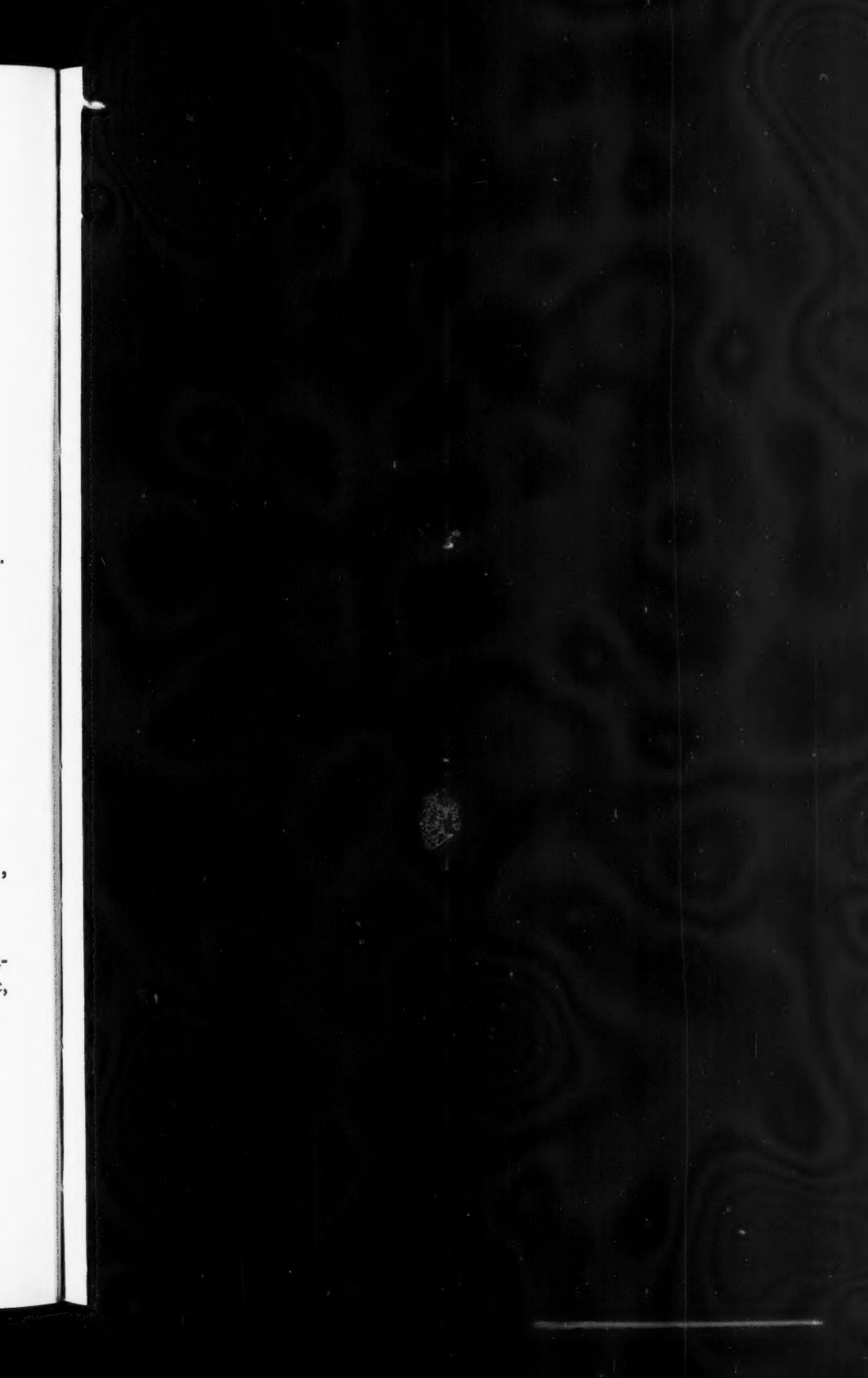

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STUDENT MEDICINE, the official journal of the American College Health Association, was established to provide a medium for the exchange of information relating to the practice of medicine in college and university health services. It welcomes the opportunity to publish articles pertinent to this area of medical practice.

Manuscripts of papers read at the Annual Meeting of the Association are to be filed with the presiding chairman following their presentation and will be published if acceptable to the Editorial Committee. Other manuscripts submitted for publication should be sent to Dr. Ralph W. Alexander, Gannett Medical Clinic, Ithaca, New York. Business correspondence and books for review may also be sent to the same address.

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Editorial Comment

UNIFORMITY IN REPORTING

THE panel discussion "Uniformity in Reporting Morbidity and Student Health Service Activities," which appears on page 196, deals with an important subject. One of the panelists expressed serious doubts that any degree of uniformity can be established. We hope that he is mistaken. The lack of uniformity in reports is confusing and at times annoying. An example which must cause repeated annoyance to most student health physicians is the unlimited variation of forms for reporting medical history and physical examination. This becomes especially evident when we help a student who has applied to several medical or other graduate schools, each requiring a different form and varying widely in the information requested and in format. How much simpler and less time-consuming it could be if all such forms were identical.

It does not seem that there can be any valid reason why a standardized form cannot be developed for reporting medical history and findings of physical examination which would provide the desired information for any or all schools. Surely the physical and health requirements do not differ so greatly from one school to another. Furthermore, it should be possible for such a form to be less detailed and less complicated than some now in use.

This problem is just a small fragment of the one contemplated by the panel, but if uniformity were obtained in this and its value demonstrated, it might help to gain the co-operation of all student health personnel in working toward the larger end of uniformity of reporting all aspects of their operations. It would be a practical demonstration of some of the desirable features of uniformity in reporting.

RECOMMENDATIONS FOR IMMUNIZATION

In recent months several recommendations have been made which indicate the need to re-evaluate some of our immunization procedures. Some of these recommendations stem from the development of new immunizing agents or the modification of previously used agents, others have come as the result of further experience, and some are a restating of recommendations previously made but not yet universally accepted.

In this issue Doctors Cowan and Boynton present an evaluation of the use of low-potency diphtheria toxoid combined with tetanus toxoid as a routine immunization procedure without regard to the Schick status of those to whom it is administered. Low-potency diphtheria toxoid has been found to produce a satisfactory antibody response, and the incidence of significant reactions is low. If combined with tetanus toxoid, a satisfactory antibody response to both antigens is obtained. The use of such a product eliminates the need for Schick testing and decreases the number of injections to be given, thus making much easier the immunization of a large group of people. Doctors Cowan and Boynton found that the incidence and severity of the reactions produced by this low-potency (adult-type) combined diphtheria-tetanus toxoid were low and not a deterrent to its use in routine immunization of university students.

The value of such a program for immunizing our college and university students against diphtheria and tetanus can hardly be questioned. Immunity to diphtheria resulting from immunization in infancy is gradually lost, and many will no longer have protective antibody levels by the time college age is reached. The increased incidence of diphtheria in adults which has been noted in recent years is a forewarning of what may be expected if we do not maintain immunity in older children and young adults. Tetanus, although rare, is a serious disease, but one which is almost completely preventable. This can be accomplished only by immunization of all individuals with tetanus toxoid. Tetanus antitoxin is unreliable in the prevention of tetanus and its use is attended by considerable risk of serious or even fatal reaction. In fact even skin testing with horse serum prior to its administration

is not without danger. A recent report describes a fatal anaphylactic reaction from skin testing with a 1–10 dilution of horse serum.[1]

Since a report in 1948 indicated *Clostridium tetani* was sensitive to penicillin both in vivo and in vitro, some have advocated its use for the prophylaxis of tetanus.[2] Filler and Ellerbeck, in a recent discussion, state the belief that antibiotics, including penicillin, the tetracyclines, and chloramphenicol, are of value in the prophylaxis of tetanus.[3] Recent work by McDonald and others indicates that penicillin may not be effective, especially if administration is delayed. Mice were not protected by penicillin in dosage of 1,500,000 units per kilogram when it was given twelve hours after innoculation with tetanus spores, and guinea pigs were not protected by 16,000 units per kilogram given immediately after innoculation.[4] They also reported the failure of tetanus antitoxin, in doses as large as 300 units per kilogram of body weight, to prevent fatal tetanus in mice innoculated with tetanus spores. These observations point up the importance of tetanus-toxoid immunization programs.

For the individual patient who needs protection against tetanus following a wound, the "Standard Procedure for Tetanus Prophylaxis" as suggested by Filler and Ellerbeck may be used as a guide, especially if it can be shown that the failure of penicillin to prevent tetanus under experimental conditions in mice does not apply to clinical conditions.[5] That this is a possibility is suggested by the several reports cited by Filler and Ellerbeck, which indicate that antibiotics may be of value in the prevention and treatment of tetanus.

Immunization against poliomyelitis is desirable and should be strongly recommended to everyone, except perhaps the aged. The inactivated virus vaccine developed by Salk has had wide usage

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[1] B. H. Buff, Fatal Anaphylactic Shock Following Intradermal Skin Test with Dilute Horse Serum Tetanus Antitoxin, *J.A.M.A.*, *174:* 1200–1201, 1960.

[2] R. S. Diaz-Rivera, L. R. Deliz, and J. Beno-Suarez, Penicillin in Tetanus, *J.A.M.A.*, *138:* 191, 1948; W. I. Taylor and M. Novak, Prophylaxis of Tetanus with Penicillin-Procaine, *Ann. Surg.*, *133:* 44–49, 1951.

[3] R. M. Filler and W. Ellerbeck, Tetanus Prophylaxis, *J.A.M.A.*, *174:* 1–4, 1960.

[4] R. T. McDonald, L. Chaikof, and J. P. Truant, An Analysis of Prophylactic Measures in Experimental Tetanus, *Surg. Gynec. Obstet.*, *110:* 702–706, 1960.

[5] Filler and Ellerbeck, *op. cit.*

in the United States and has proven to be highly effective. Experience with the newer live vaccines suggests that they may replace the inactivated vaccine in the future. Basic immunization with the inactivated virus consists of three injections, the second at least one month after the first, and a third seven to twelve months after the second. A booster dose one to two years after the third is desirable to maintain good antibody levels.

Influenza vaccine has been found to have considerable value, and it has been recommended by the United States Public Health Service that at least certain high risk groups should receive annual immunization.[6] The high risk groups are considered to be: (1) persons of all ages with chronic debilitating diseases such as rheumatic heart disease (especially mitral stenosis), other cardiovascular disease, chronic bronchopulmonary disease, diabetes mellitus, and Addison's disease; (2) pregnant women; (3) all persons fifty-six years of age or older. The dosage schedule recommended is two doses of 1.0 cc. (500 chick cell agglutinating units) of a polyvalent vaccine given subcutaneously at least two months apart. The time interval between doses is considerably greater than that which has been generally used. After the initial series of two doses of polyvalent influenza vaccine a single booster dose of 1.0 cc. should be given each fall. The value of influenza immunization for young healthy persons is less definite, except when there is threat of an epidemic, but there is no contraindication to its use except history of allergy to eggs or to an egg-produced vaccine.

Student health physicians frequently administer typhoid vaccine, usually to someone planning a trip abroad. One might suppose that a vaccine which has been in use so long would have a universally accepted plan for administration. Such is not the case. The most common method of initial administration is subcutaneously in three doses of 0.5 cc. each, given at weekly intervals, but some advocate giving 0.1 cc. intracutaneously. The intracutaneous route is not so likely to produce severe reaction, and its advocates claim that it is just as effective in producing immunity as are the larger doses given subcutaneously. To maintain immunity, a booster dose should be given annually. But if annual

[6] L. E. Burney, Routine Annual Immunization against Influenza, *J.A.M.A.*, *174:* 438, 1960.

booster doses are not kept up, what must be done to re-establish immunity? According to Larimore and Freitag, if more than one year has elapsed since the last dose of typhoid vaccine, the initial series of three doses should be given.[7] On the other hand, Edsall, in answering a query in the Question-and-Answer Department of the *J.A.M.A.* about the proper immunization procedure for a man who had had a series of three doses of typhoid vaccine twenty-one years ago and no subsequent booster doses, stated that one dose was adequate, either 0.5 cc. subcutaneously or 0.1 cc. intracutaneously.[8]

It is encouraging that the Section on Clinical Medicine has a committee working to develop recommendations for immunization requirements. There appears to be a need for standardization of immunization procedures and for evaluation at regular intervals, so that we all may be kept informed of new developments or changes in recommendations.

[7] G. W. Larimore and J. L. Freitag, Foreign Travel: The Physician's Role, *N.Y. J. Med.*, *60:* 902–906, 1960.

[8] G. Edsall, Immunization, *J.A.M.A.*, *174:* 922, 1960.

Uniformity in Reporting Morbidity and Student Health Service Activities: A Panel Discussion*

HENRIETTA HERBOLSHEIMER, M.D., *Chairman*, AND JACK MARSHALL, M.D., *University of Chicago;* JOHN R. MOORE, *University of California, Berkeley;* MELBOURNE MURPHY, M.S.P.H., *University of Michigan;* AND JOHN WILMS, M.D., *Purdue University*

Dr. Herbolsheimer: Our title, "Uniformity in Reporting Morbidity and Student Health Service Activities," deals with one of the recommendations of the American College Health Association president, Paul Greeley, in his address yesterday. Dr. Greeley pointed out that the data available from college health services are only a mass of numbers, limited in their usefulness by variation in definition of terms and in analysis and presentation of information. He asked that ACHA search for appropriate statistical methods to handle the data in a more uniform and meaningful fashion. It was a pleasant surprise to find our subject included in this keynote address.

Gallagher in his excellent text on the *Medical Care of the Adoles-*

* Presented before the Section on Clinical Medicine, American College Health Association, Thirty-eighth Annual Meeting, Toronto, April 28, 1960.

cent, just off the press, states "morbidity data regarding members of the adolescent age group is scanty." [1] He acknowledges that college health services are an important source of health information, but he points out the limitations and bias of this source of data. Because not all adolescents attend college and few colleges have a full summer session, the figures on incidence and prevalence are incomplete with regard to the total population of the age group and with regard to seasonal variations in deviations from health. Community data for all seasons and all socioeconomic and age groups is beginning to become available through the continuous sampling survey of the United States Public Health Service.[2] The first monograph of the series on children and youth offers some interesting data and there is promise of more to come.

These two recent publications should be reassuring to administrators of college health programs who, for purposes of program planning, operation, and evaluation, need to collect data on services rendered. The fact that our people are but a segment of the age group does not disturb me; for soon most of this age group will have the opportunity to go to college. Neither does the seasonal variation factor pose an insurmountable obstacle; for the United States National Health Survey can be used to "correct" for this hiatus. Therefore, the colleges, in the collection, analysis, and presentation of their data, have an opportunity to offer sensitive information about a population which up to now has been of relatively little general clinical interest.

When data from more colleges are available and when the data from all colleges are tabulated and analyzed in a uniform manner, then we who deal with this age group will have attained more reliable and more useable information, not only for ourselves, but for our colleagues in other branches of medicine and community health.

A number of colleges circulate annual or biennial reports on their problems and the way in which they are meeting them. It is, however, rather taxing and definitely risky to compare data

[1] J. R. Gallagher, *Medical Care of the Adolescent* (New York: Appleton-Century-Crofts, 1960), p. 345.

[2] U.S. Public Health Service, *Health Statistics: Children and Youth: Selected Health Characteristics* (Public Health Service Publication No. 584-C1; Washington: U.S. Govt. Print. Off., 1957–1958).

which have been compiled on diverse formats and relate to uncertain denominators. Our health statistics need to speak the same language.

Perhaps all of us collect too much data. Sagen, who is the top consultant to the National Health Survey, says:

> The mass of statistics that can arise from conducting health services and programs make it important that health agencies exercise discrimination in planning statistical work. The primary necessity is to plan how much statistical work will be needed to operate the program effectively and to furnish a simple evaluation of its effectiveness.

He goes on to state:

> An unfortunate circumstance is that statistics too often connote mere aggregates of numbers in tables in which one can search for and find an interesting numerical "fact." Throughout the country, health statistics as a whole still suffer from much poor handling of data. Insufficient precautions in assembling data, improper processing, and unskilled analysis produce unusable and misleading "statistics." Year by year we are seeing improvement as the users of health statistics become better informed and as the statistical personnel in health work become more proficient.[3]

Before we get into any more generalizations, let us hear from the members of the panel as to how they, in their colleges, are reporting their data and what their ideas are on this problem. Mr. Melbourne Murphy of the University of Michigan.

Mr. Murphy: The problem before the panel has been with us for many years. There is some question in my mind as to whether there can ever be complete uniformity among student health services since no two are exactly alike. Ideally, uniformity is greatly to be desired. However, there is no "ideal health service," or "ideal college" or "ideal employees."

Uniformity would begin with a standard form for the entrance physical examination. This has never been done, since various schools feel that they require certain information that other schools do not require. Among the schools of this Association there has been no definite consensus as to whether the family physician or the college health service should give the health examination that

[3] O. K. Sagen, Current Methods of Collecting Statistics of Health and Health Problems, *Public Health Rep., 67:* 737–740, 1952.

is required prior to or shortly after college entrance. There are many factors which will influence the decision in individual institutions. These include the philosophy of the health service, facilities and personnel available, and priorities given to various health service functions. The trend seems to be toward examinations by the family physician.

At the second, third, and fourth National Conferences on Health in Colleges it was brought out that the use of a standard nomenclature of disease was desirable. It was also pointed out that several systems of nomenclature that might be applicable for college health records are available, but none seems to have achieved general acceptance among colleges.

Throughout the years at the University of Michigan a diagnosis file has been kept. For several years the Standard Nomenclature was used, but later dropped because it was felt that it was too complicated for the value received.

It is this panelist's belief that the most important part of conformity is to record all illnesses at rates per thousand population entitled to service. If this were done, all schools across the nation (and in Canada) could compare their rates and measure the health problems among our students. It would be very interesting to compare the rates of the leading causes of illness in all schools.

Another lack of uniformity has been due to the inability or reluctance on the part of health services to impart physical and emotional evaluations of the health of a student for the purpose of transferring records from one school to another. There will also be a lack of uniformity in reporting health service activities due to variances in schools. This is because certain activities are carried out by some schools and not by others. To mention a few: environmental health activities, faculty examinations, faculty treatments, employee examinations, employee treatments, psychiatric examinations, psychiatric treatments, food handler examinations, and infirmary or community hospital care.

These are just a few of the health service activities that vary from school to school; therefore, there can be no uniformity. Recent studies have also shown that financing also varies from school to school. Insurance plans also are "tailor-made" for each school; thus, there can be no uniformity among these.

It is the opinion of this panelist that due to the peculiarities of the schools concerned there can never be uniformity of reporting "morbidity and student health service activities."

Dr. Herbolsheimer: Thank you Mr. Murphy for your practical and realistic discussion. Let us hear from the University of California at Berkeley through Mr. John Moore.

Mr. Moore: I am going to take the opposite point of view, partly because I think it will liven up the discussion and also because I actually believe it is possible for a group of this type to develop a method for a uniform reporting system, provided that everyone is willing to contribute the needed effort.

When I first read the title to which we are addressing ourselves, I felt that we were asked to handle a very formidable topic. Some might feel that uniformity in any part of a medical care program is an element that tends to stifle good judgment and individuality; others that any kind of uniformity detracts from the freedom and flexibility necessary to give the best possible medical and hospital care to each patient.

Although these things occurred to me in preparing for this program, I am still convinced that an excellent case can be made to show clearly the value that will accrue to all of us if we are able to develop a system that will provide for uniformity in reporting morbidity in student health services.

My remarks are confined to an area of this total subject with which I am most familiar—namely, use of statistical or morbidity data in connection with development of the meaningful yardsticks and formulas needed to solve or cope with a variety of administrative problems, such as budgeting or staffing patterns. First, I should like to say, and this is partly in agreement with Mr. Murphy, that establishment of uniformity in any procedure or in any area of operation requires a tremendous amount of planning, understanding, and communication between the persons, departments, or organizations involved before an effective program can be formalized. Also, it should be made clear that to achieve uniformity there must be a sincere willingness to compromise and, the moment full agreement has been reached, to implement the uniform terminology and procedures that have been developed. In my opinion uniformity in reporting morbidity can be accom-

plished, but if it is done in a haphazard way, it will be unnecessarily costly, wasteful, and perhaps even completely ineffective.

Our plan should take advantage of the experience of other agencies, the United States Public Health Service for example, and it needs to be evaluated constantly so that misinterpretations do not occur and so that it can be kept up with changing needs.

Management of any business—including student health services—must have a variety of information about all activities engaged in, in order to operate in an effective and economical manner. Quantitative information about the volume and scope of every activity engaged in is essential if you want to have a sound and economical program. The term "statistics," as we use it today simply describes the science of collecting, classifying, summarizing, analyzing, and interpreting quantitative data.

In order to have uniformity in reporting morbidity, we must first accomplish the following:

1. Develop meaningful units of service.

2. Define and standardize statistical units used to measure student health service activities (I emphasize *definition* because it is paramount to understanding what we are all talking about).

3. Realize that statistics in themselves do not prove anything, that they are only evidence which must be critically studied and analyzed before the true significance can be determined. When statistics are misused, as they frequently are, they soon fall into disrepute. If it is understood that statistics show only the numerical side of a problem and that all other facets of the program and business must be thoroughly understood before using the statistics, then we can avoid many of the problems that cause statistical data to be discredited.

4. Determine and define the method of counting each unit of service and the appropriate subdivision for each unit. For instance, one outpatient visit may differ widely from another, but each is counted numerically as one unit of service. Analysis and review of the numerical data may show a total of 500 outpatient visits, for example, of which 200 are for general service, 200 for dermatology service, and 100 for psychiatric service. Study of these data will clearly establish that the average time spent for each kind of service will vary and that staffing requirements will differ widely.

I believe that uniformity in reporting morbidity in student health services would be a real asset to each of us in carrying out his administrative and management responsibilities for some of the following reasons—and there are many others. First, it would give us the opportunity to compare health service activities from college to college realistically. As it now stands we cannot do this; we are unable to review the annual report of another college and compare the total number of any particular unit of service, such as outpatient visits, and be assured that we are all counting the same thing in the same way.

Second, in establishing a uniform reporting system in each health service I am sure we would learn, or at least confirm, a great deal about what actually goes on in each office or department. This alone may help in pin-pointing problem areas so that we can achieve better use of resources.

My last point, and probably one that you may not have had to face as yet, is justification for funds. Most college governing boards face an almost insurmountable problem in allocating funds to each department. In many cases they grasp for any bit of information they can obtain to justify the cutting of an appropriation for a given department. As a result they frequently compare your statistical data and fiscal reports with those of other universities. This happens to us all the time. If they can find one college where the cost is lower, then that is the one they will use as an ax to cut appropriations. Because college health statistics are now compiled in all sorts of different ways, they encourage misinterpretation by governing boards—and usually not in one's favor. This is a good reason for uniform quantitative data, to help in comparing program activity and costs with other universities and also to form a basis for development of sound formulas and standards to be used in determining final budgetary requests and recommendations. It may also help us to formalize what we might consider to be minimum staffing requirements for health services as a part of an accreditation program.

In summary, I should like to say a few words about the program that we started three years ago at the University of California. We have six separate student health services, located in different parts of the state of California, some as much as 500 miles apart.

Each unit is organizationally responsible to the local campus chief administrative officer. At the present time there is not a statewide organization. Approximately three years ago each director of the University of California Student Health Service agreed to attempt to develop a program of uniformity in reporting morbidity and management information in our student health services simply because we had so much difficulty in presenting budgets to the state legislature. Thus far we have developed some very valuable data, but we are still working on definitions. This is one of the most difficult problems. We have to get a definition of a unit of service that meets the need of each director and that everyone interprets and uses in the same way. We expect that this will be a continuing process for at least three more years, before we arrive at a program acceptable to all of us. We are convinced that it is extremely valuable, because we are placed in a position of having our programs, operating-expense budgets, production reports—or annual reports, if you will—compared one to the other. In the past we were unable to explain adequately to our Boards the differences among programs, simply because none of the data was collected in any kind of organized or uniform way.

Dr. Herbolsheimer: Thank you Mr. Moore. The Mental Health Section, as some of you know, is addressing itself to the problem of data-keeping, and Dr. Wilms is familiar with some of their deliberations. Now to present Dr. John Wilms, psychiatrist on the Purdue staff.

Dr. Wilms: I agree with Mr. Moore and I thank Mr. Murphy for playing the devil's advocate so that we might disagree publicly with him. I very much favor a great deal of concentrated work in this area at the present time. Since I am relatively new to the field and since our health service is still abuilding, we have much more in the way of enthusiasm than of concrete results to report. But maybe I can disseminate some enthusiasm here for your use.

I believe the need is already well-established for uniformity of reporting, so not much more need be said about that except a couple of thoughts which may represent additional contributions.

I believe that the study of what we do is a great factor in the improvement of the quality of what we do. I suppose that all of us have had the experience of observing that when we are writing

up a case we do a better job of evaluating that case than we do if we are not writing it up. We are careful about our handling of material and facts if we are going to present them for someone else to read. There are other advantages to come from keeping careful records. A means can be established of evaluating treatment programs historically and contemporarily as well. This is related to the talk of Dr. Wightman yesterday, in which he spoke on rational therapeutics. If we record from year to year what we do to whom for what, I believe we will be in a much better position to evaluate new techniques of treatment as they develop. We have all been in the field sufficiently long to see various therapies come into fashion and then go out again, because of inadequate initial evaluation.

We have actually kept so little in the way of statistics about actual individual disease processes that it is difficult to tell whether the patient would recover with or without treatment. This applies in the field of psychiatry, but it is not unknown in the field of medicine as a whole. Psychotherapy, for example, is open to question now as an effective means of treatment. It is perhaps a shameful thing to say, but we do not know for sure if psychotherapy is effective, even though we believe that it is. We hope that by keeping careful records we will be able to say one day whether it is or is not.

A few words about the methods of keeping records. New systems are always being developed. We are producing new tests, new techniques, and new diagnostic categories. We like to group things according to new systems and find that this is an effective way of getting one's name into print. I am opposed to the development of new methods of classification until the present methods have been proven inadequate. To be more specific, the psychiatric diagnostic and statistical manual, the so-called gray manual put out by the American Psychiatric Association in 1952, is a good definitive book. It provides excellent definitions of psychiatric conditions and a statistical framework for tabulating the conditions, and even the severity of the conditions. This book, in my opinion, is a masterpiece of medical writing, of good concise description in the most esoteric field of psychiatry. We need to know how to use what we have. Most physicians are not familiar

with this book and believe that psychiatric diagnostics is a completely bewildering field. It is not necessarily so. Here in about twenty or thirty pages we have easy-to-read and easy-to-obtain material which I strongly recommend to your use. Terms such as "neurasthenia," "anxiety state," and "psychopathic personality" are no longer useful and should be abandoned. Their replacements are well described in this book.

As I have mentioned, our program at Purdue is still in embryonic stages. The Psychology Department operates an outpatient clinic which is collaborating with the Department of Psychiatry of the Student Health Service. I believe that we are working together well in the matter of keeping records and statistics concerning our activities. We use the same diagnostic formulations, the same record-keeping cards, and the same terms for services dispensed. We are able to compare records fairly well. It is a good sign for the rest of the field of medicine when a psychologist and a psychiatrist can compare notes successfully.

Multiple levels of work are required if we are going to make sense of our activities. We must have constructive efforts within our individual specialties. The orthopedists must meet to determine what they think is of interest and what they would like to tabulate, just as the psychiatrists, gynecologists, and other specialists must similarly work. We must meet as specialists and determine what we want to do, what we wish to record, and what type of services we are dispensing. Then we must have interspecialty meetings and meetings between student health services so that we can coordinate these activities. This, of course, is where the American College Health Association provides us with a good structure. As has already been said, it is necessary to have liaison with other agencies already active in these fields. The American Medical Association, National Institute of Mental Health, United States Public Health Service, American Psychiatric Association, and international associations are now working in these fields, and we should know of their activities. I believe the American College Health Association is a particularly good place in which to start. As Dr. Herbolsheimer has already said, we are an interdisciplinary group, a relatively small group and not cumbersome. We have great resources with which to work. IBM facilities are available

on many campuses and other facilities as well. It cannot be denied that upon many campuses, research facilities and personnel are available that are available to no other medical groups. For these reasons I believe that the American College Health Association can make a major contribution to the field of medicine as a whole.

Dr. Herbolsheimer: Thank you very much Dr. Wilms. Our last participant is Dr. Jack Marshall.

Dr. Marshall: I would like to transfer the talk to something more specific; to what we are doing at the University of Chicago in an attempt to develop a uniform workable system which might apply to other schools.

Initially I would like to respond to Mr. Murphy and tell him that physicians do not want a program whereby *uniform care* is administered; rather, we see the need for a *uniform approach* to the problems of medical care. We realize that certain factors such as size of the college or university, arrangement of the class schedules (on a quarterly or a semester basis), number of foreign students, and other factors, undoubtedly influence the total picture of disease as seen in the health service. If we all have a uniform approach to the problem, I do not think that these variables will distort the picture unduly.

We utilize two things for our purpose, a service slip and an abbreviated form of the International Diagnostic Code. We feel that this two-volume compilation is actually too extensive for our rather specific needs, so we have abbreviated it to two mimeographed pages which fulfill, in most instances, the requirements for our work.

The service slip constitutes the evidence of service given to a student. For any service given a student coming into the Student Health Service, a service slip is filled out and eventually is collected and the statistics derived from it. This applies not only to our general medical staff but also to all specialists, including our psychiatric staff. The initial part is filled in by the student and the latter part is filled in by the physician giving the care. This occupies a very few minutes of his time, and with increased familiarity with the abbreviated form of the diagnostic code it requires no great mental exercise to fit to the code the service rendered.

After the service slip has been completed, it is detached from

the record and given to a clerk, who makes a daily summary of patients seen and the diagnostic categories involved. This is tabulated into a monthly record and eventually is made into a yearly record. From this information it then becomes relatively easy to review experience and to project needs.

In addition to measuring volume of service by category of disease, the service slip is used to establish a register or pathology file indicating the prevalence of selected diseases of major concern. All this is handled very easily by clerks.

Dr. Herbolsheimer: Does the panel have questions to ask one another?

Dr. Marshall: I have a question I would like to ask Dr. Wilms. The place where our service slip has failed notoriously has been in relation to having our psychiatric staff go so far as to label a visit one of five or six categories. The general feeling has been, I think, that this is a violation of the confidential relationship between psychiatrist and patient. There have been many difficulties in this particular area and I am wondering if Dr. Wilms would comment as to what his feelings are about it.

Dr. Wilms: I agree with you that there are difficulties in this area. Psychiatric personnel have become difficult to work with in the area of health service for students; I think that this is nobody's fault but our own. In speaking of "our own," I am speaking of psychiatrists, and I think that this is our own fault entirely. We have fallen all over ourselves maintaining "confidentiality," to the point where we have actually fostered the impression that we did not want to foster; namely, that it is a shameful and disgraceful thing to go to a psychiatrist.

If we make it such an extremely secretive business, for example, by not participating in the service slip system, patients are going to pick up the impression (which we give them very nicely) that this is a terribly secretive business and that nobody should ever admit that he has been to a psychiatrist. We do not have this problem at Purdue. My office is in the Student Health Service; the students wait to see me in the same place they wait to see the other doctors; they use the same reception desk and state there that they have an appointment with Dr. Wilms. It is a very ordinary sort of thing and the students accept it.

I haven't had a single student refuse to come in to see me because he sat in the same waiting room or because he went through the same mill that he goes through when he visits any other physician. I think it is nobody's fault but our own when we succumb to deviations which may lead people to conclude that it is such a shameful and disgraceful thing to go see a psychiatrist. On behalf of my specialty I apologize for the difficulty that you have had; I recognize that it is true and I hope that it won't always be so.

Mr. Moore: I don't have a question but an additional argument. Uniformity in reporting was started about fifteen or twenty years ago by the American Hospital Association. They were being pushed into this, more or less, by the intervention of third party payers in hospital care. At the time it was first discussed and first presented to the delegates of the American Hospital Association, it was unanimous that this was virtually impossible to achieve. Today they have one of the most effective uniform statistical reporting programs, as well as a uniform cost accounting system, of any organization in the entire health services field. It took a great deal of effort on everybody's part and a lot of compromise. But it has paid off in being able to explain to the general public, to the insurance companies, and to the other people who pay the hospital bills, the kind of work they actually are doing in terms of productive units of work. They used consultation from other agencies; the U. S. Public Health Service, I believe, helped them a great deal.

Dr. Herbolsheimer: Time is running short. Before we turn the session back to Dr. Yeager, I would like to close with a few remarks.

Whenever we embark upon a new venture we risk losing perspective, and we forget that others have been through similar difficulties before mastery was achieved. Mr. Moore has mentioned one and I have jotted down some others. The good birth and death data, the good vital statistics that exist in the United States today did not come about all of a sudden or without effort. The business started with states collecting their own data from the colonial period on, until 1915 when the first birth and death registration area was established. By 1933 all the states had finally achieved a sufficient degree of excellence for the birth and death registration area to cover the whole United States. Thus, it re-

quired the years from 1915 to 1933 to achieve stability in reporting a type of health incident, birth or death, which is relatively easy to report because it is so definite and because it occurs to persons only once. Data on illness and health services rendered are, of course, much more difficult to define and to count as separate incidents. Morbidity terms are much more nebulous than the clinical information required on birth and death certificates; but, if large enough rubrics are used and terms are sufficiently clear, the problem, though challenging, does not seem impossible.

On counts of clinical data, or services rendered, we may obtain much valuable assistance through the definitions of clinic patient visits as worked out pursuant to the Social Security Act. While it may appear that some of the definitions on counts of clinic patient visits are arbitrary, nevertheless, all clinics so tabulating their data at least come up with uniform tallies. These data are extant in all large cities where sizeable clinics are in operation and in clinics under the auspices of the various public health agencies. Mr. Moore has mentioned the struggle, within our own professional lifetime, to obtain uniform counts of hospital inpatients.

Although there has been more consensus in this panel than I expected, Mr. Murphy's initial, very practical, approach should not be lost sight of. It is, nevertheless, obvious that college health authorities have recognized that proper administration of health and medical care services for the present and in the future require accurate information about the health needs of the population served. Much ground work in health statistics has been laid by international experts in this field; we need only to adapt their work of six decades to the unique characteristics of the college population and to apply the fruits of their wisdom and experience.

Many of the clinicians in student health work are familiar with the Standard Nomenclature and some have worked with the International Statistical Classification.[4] The Nomenclature is too detailed for our purposes and the International List needs to be adjusted to include some items, like transcripts and health evaluations, which are not well delineated in the sixth (most recent) revision of the code.

[4] World Health Organization, *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*, I (Geneva: World Health Organization, 1948).

I think the time has come for ACHA to explore the values to be achieved through uniformity in reporting student morbidity and student health service activities. Perhaps the Public Health Service can offer ACHA consultation which will result in meeting the following criteria of a good statistical service:

1. The method should be designed to serve the purpose of program planning, operation, and evaluation; it should avoid gathering a mass of unmanageable data.
2. The items or rubrics should reflect service to people rather than mere enumeration of volume of activity.
3. The observations should be related to appropriate base-line data, thus enabling quantitation.
4. The detail should be sufficiently limited in scope and volume to justify the time, effort, and expense involved in its production.
5. There should be clarity in definition so that the end results may allow safe comparisons of events counted and of populations at risk of experiencing these events.
6. The schema should be appropriate for hand tabulations in the small colleges and machine tabulation in the larger universities.
7. The keeping of ongoing statistics in a uniform manner should in no way preclude individualized and unique presentations of the data nor should it discourage special population surveys or other research; rather, it should facilitate and enhance the work of the future.

Health Problems and Health Surveys of College Students*

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THIS paper concerns (*a*) the efficacy of several forms of health survey in bringing health problems to the attention of a student health service, and (*b*) the ratio of problems first recorded through these surveys to those already reported on health forms submitted by each student prior to matriculation.

The health forms provide space for recording past illnesses and previous preventive inoculations and vaccinations. They request notation of persisting health problems and recommendations for any special health supervision desirable during the freshman year. Signature of a physician is indicated as preferred, with recommendations arising from a pre-entry physical as performed by him. In fact, about two-thirds of the forms are signed by a doctor and the rest by a parent or guardian.

Three principal forms of health survey have been used in our health service for many years: (1) candidates for the freshman football team have been examined by a group of doctors and professional assistants assigned to different examining stations, in a single afternoon during the week of matriculation; (2) individuals with data on their health forms indicating the need for early health supervision have been scheduled for "early examination," performed by a physician in the physical examination clinic, and

* The costs of this project have been defrayed in part by a research grant in the Nursing Division of the U.S. Public Health Service.

then referred to the appropriate clinic or specialist in the health service for further supervision. Examinations for this group are usually all completed by mid-November. (3) The remainder (about 80 per cent of the class) receive the same type of examination as those in the "early" group, but completion of scheduling for this group runs into mid-February. These "routine" examinations are reviewed by a physician or nurse of the Department of University Health and referred to the appropriate clinic for further supervision as indicated by survey or record findings.

For the past two years this "normal" group in each entering freshman class has been further subdivided for exploratory examination of different health survey procedures, as discussed in Section C, below.

Analysis of this data is based on the findings in two successive freshman classes, each of about 1,000 students. These findings have been combined in the following discussion, as statistical analysis has shown the two years' experiences to be comparable for the purposes of this study.

The analysis has been limited to "chronic" health problems. These may be defined as: (1) presumably originating prior to matriculation at Yale, and manifesting themselves either by chronic or intermittent symptoms, (2) belonging to a clinical group in which recurrence of symptoms is likely, or (3) resulting in secondary complications of a persisting nature for which further clinical supervision or treatment might be beneficial.

These health problems have been classified into nine groups as follows: (1) allergies, (2) bone and joint (traumatic only, non-traumatic entered under group 9), (3) cardiac, (4) respiratory, (5) gastrointestinal, (6) genitourinary, (7) eye, ear, nose, and throat, (8) psychobiological, and (9) miscellaneous.

A. PREVALENCE OF CHRONIC HEALTH PROBLEMS IN FRESHMEN

Under the classification given above, chronic problems are found most commonly in the student group in the following four categories: (1) eye, ear, nose, and throat (of which most are "defective vision, corrected"); (2) traumatic bone and joint;

(3) allergies, and (4) psychobiological adjustment (see Table 1). Prevalence alone, however, is an inadequate measure of the importance of these problems to the student and his health service. Types of problems requiring further evaluation or specific treatment are of chief importance, as opposed to those for which these steps have already been taken.

Thus, defective vision for which refractive correction has already been supplied accounts for the majority of problems in the eye/ENT category. Only a small fraction of the allergy problems need further diagnostic or therapeutic consideration. In contrast, many of the traumatic bone/joint problems require re-evaluation in regard to sports participation, as do a majority of the cardiac cases. In the area of psychobiological adjustment, most require further evaluation, and about two-thirds need some degree of therapeutic advice.

B. ROLE OF THE HEALTH SURVEY IN FINDING PROBLEMS

Turning to the role of the health survey in finding problems in these nine health categories, we see in Table 1 that in all but two categories over one-third of the problems have been recorded prior to the health survey. For allergy and bone and joint about 90 per cent have been previously noted, such notation occurring on the health form in all but a small fraction that were noted at the clinic prior to the survey. A similar proportion of refractive errors was probably known prior to matriculation but not considered of sufficient importance to note on the health form.

Any health survey contains three components: (1) the health history, derived from questionnaires or interviews, (2) mass screening procedures involving laboratory studies, x-rays, or skin tests, and (3) the physical examination itself. Each of these components on occasion plays the major problem-finding role. Thus, the findings during survey reported in Table 1 under respiratory, genitourinary, and eye/ENT are largely found through mass screening: chest x-rays, urinalyses, and visual acuity tests. Those noted under gastrointestinal or psychobiological are found through interview or questionnaire techniques, and cardiac problems are

Table 1. Incidence per 100 students of chronic health problems in college freshmen*, and percentage† in each health category, entered on the health records *before*, *during*, and *after* the health survey

Nature of problem	Before	During	After	Total
Allergy	20.9	1.9	0.5	23.3
	(89.8)	(8.0)	(2.2)	(100)
Bone and joint	26.6	2.8	0.4	29.8
	(89.2)	(9.4)	(1.4)	(100)
Cardiovascular	4.3	3.4	0.4	8.1
	(52.9)	(41.9)	(5.2)	(100)
Respiratory	1.9	2.2	0.5	4.6
	(41.2)	(48.6)	(10.2)	(100)
Gastrointestinal	1.3	1.3	0.4	3.0
	(42.8)	(44.4)	(12.8)	(100)
Genitourinary	1.7	2.4	0.3	4.4
	(39.2)	(54.4)	(6.3)	(100)
Eye/ENT	10.0	45.3	0.7	56.0
	(17.9)	(80.9)	(1.2)	(100)
Psychobiological	3.0	6.5	6.4	15.9
	(19.0)	(40.8)	(40.1)	(100)
Miscellaneous	5.3	5.0	1.8	12.1
	(43.5)	(41.6)	(14.9)	(100)

* Represents the combined findings of two successive freshman years, in two classes, each of 1,000 students.

† Percentages are expressed in parentheses beneath the rates.

usually first found on physical examination. It appears possible, therefore, that the procedural form of a health survey as a problem-finding process might well vary according to the particular health categories most important in effective preventive health action for the particular age, sex, and sociocultural group concerned.

A preliminary development of these suggestions is given in the next section of this paper.

C. COMPARATIVE EFFICACY OF DIFFERENT TYPES OF HEALTH SURVEY

Differential Health Findings in Main Survey Groups

Table 2 shows rather striking differences in the prevalence of various health problem categories in the three main types of survey group defined at the beginning of the paper.

Table 2. Incidence per 100 students of chronic health problems as reported on the pre-entry health forms for college freshmen receiving three different types of health survey

Nature of problem	Type of health survey		
	Routine	Football	Early
Allergy	18.7	14.8	39.1
Bone and joint	23.4	36.8	42.2
Cardiovascular	3.0	3.9	20.0
Respiratory	1.5	0.6	4.1
Gastrointestinal	1.0	2.6	3.6
Genitourinary	1.0	0.0	4.5
Eye/ENT	9.0	8.5	16.8
Psychobiological	3.0	0.0	5.9
Miscellaneous	4.5	3.2	14.1
No. in group	600	155	220

The differences between the early and routine scheduled groups are due to selection. Thus the high early prevalence for allergy, and bone and joint, as well as the rise of cardiac conditions from a rank of sixth in the over-all prevalence to third in the early group reflects the opinion of the physician reviewing the health forms of the need for early evaluation of such problems.

In contrast to the above, the difference between the football and routine survey groups is not a matter of professional selection but reflects the health problems of a special subgroup—those engaged regularly in contact sports. The football group has a significantly higher rate of bone and joint problems and lower rates for allergy, respiratory, and psychobiological adjustment problems. This suggests the desirability of including routine evaluation by an orthopedist or a surgeon experienced in the supervision of athletic injuries as a part of any routine health survey for this group.

Contribution of a Nurse-conducted Health Interview

For the last two years, 300 students have been selected by random sampling from the routine survey group for special survey analysis. Two hundred of these students have had a nurse-conducted health interview added to the usual survey procedure, and 100 of these 200 have had the physical examination omitted, unless specifically

recommended by the nurse-interviewer. The final 100 have served as a control, representative of the remainder of the routine group.

Health-problem finding can therefore be compared for three survey groups: (1) those with health interview and laboratory screening only, (2) those with physical examination added to the procedures for group 1, and (3) those with physical examination and laboratory screening only.

In examining the data we have asked three questions: (1) Is the interview an effective replacement for the physical examination in health survey problem finding? (2) Are there special areas in which either survey procedure is significantly more effective than the other? (3) Is a combination of both significantly more effective than either one alone?

Reference to Table 3, showing problems on the health records immediately following the health survey and at the end of the freshman year for groups examined by these three different types of survey, suggests the following: (1) With the exception of the

Table 3. Incidence per 100 students of chronic health problems on record at termination of health survey and at end of freshman year* for subjects undergoing three different types of health survey

Nature of problem	Chronic problems on health records					
	After survey			At end of year		
	Survey group†			Survey group†		
	1	2	3	1	2	3
Allergy	21.2	21.7	20.0	21.2	21.7	21.5
Bone and joint	25.6	26.7	25.0	25.6	26.7	26.0
Cardiovascular	6.5	5.8	6.0	6.5	7.3	6.0
Respiratory	4.9	3.9	4.0	5.4	4.4	4.5
Gastrointestinal	2.2	4.4	0.5	2.7	4.4	0.5
Genitourinary	3.3	4.8	2.0	4.9	5.3	2.0
Eye/ENT	55.0	55.0	59.2	55.5	55.0	60.0
Psychobiological	15.2	12.1	4.5	25.0	17.9	8.0
Miscellaneous	10.3	10.7	8.5	12.5	10.7	11.0
No. in group	184	206	200	184	206	200

* Findings for two successive freshman years are combined.

† Survey group: 1—interview only; 2—interview and physical examination; and 3—physical examination only.

psychobiological category, there are no differences of significance among any of the three groups; (2) in almost all categories, group 3 has slightly fewer findings than the other two; (3) the differences between groups 1 and 2 are too small and inconsistent to be conclusive at this point.

D. SUMMARY AND CONCLUSIONS

The findings presented suggest that in this group of college undergraduates the incidence of organic disease is very low, and such disease as does exist either is known before admission to college or is such that it can be found most effectively through mass screening procedures. The data suggest further that under suitably controlled conditions, an interview can safely replace a routine physical examination in health surveys designed for this college group.

The data confirm the findings of others that adjustment problems and functional difficulties have a high prevalence and represent an important health problem in this age group. Such problems are best discovered in a properly designed interview, as our data show.

It is our feeling that health surveys have contributions to make in a health service of far greater importance than their potential for finding problems. These contributions will be reported in further studies.

Immunization of College Students with Combined Diphtheria-Tetanus Toxoid (Adult-Type)

DONALD W. COWAN, M.D., AND RUTH E. BOYNTON, M.D., UNIVERSITY OF MINNESOTA

AS pointed out in a previous communication young adults, as a group, require diphtheria immunization.[1] Although widespread diphtheria immunization of infants and young children has long been practiced in the United States, this basic immunity declines in the absence of "booster" exposures to carriers (which are few today), unless recall injections of diphtheria toxoid are administered. In our experience roughly half the entering students at the University of Minnesota are Schick positive.

Tetanus, although a relatively rare disease, is extremely dangerous, often results from minor wounds for which medical aid is not sought, and is practically 100 per cent preventable by properly spaced toxoid injections. In recent years infants and small children have been protected from tetanus by active immunization but all too often the booster injections are not continued beyond childhood. Hence the desirability of routine vaccination against tetanus and diphtheria in college students.

[1] R. E. Boynton, D. W. Cowan and P. Rupprecht, Immunization of College Students against Diphtheria, *J.A.M.A.*, *164:* 1874, 1957.

For twenty-three years (1935–1958) a Schick test and Schick control test were part of the routine examination of all entering students at the University of Minnesota. Starting in 1935 alum-precipitated diphtheria toxoid was offered to (and accepted by more than 90 per cent of) those who had a positive Schick test.

In the fall of 1951 immunization against tetanus was included in our program. Starting at that time students who were found to be Schick positive were immunized with two doses of alum-precipitated combined diphtheria-tetanus toxoid; those who were found to be Schick negative were given two doses of alum-precipitated tetanus toxoid.

In 1957 we reported a summary of the reactions to these two immunizing agents.[2] The group under study were the students who entered the University in the fall of 1954. It was found that local reactions occurred in 70.4 per cent of those receiving alum-precipitated tetanus toxoid and in 51.7 per cent of those given alum-precipitated combined diphtheria-tetanus toxoid. The incidence of general reactions was 13.1 per cent for the combined toxoid and 9.9 per cent for tetanus toxoid. Thus there was some reaction in a very high percentage of all students; but such reactions were not severe enough to militate against the routine use of these alum-precipitated vaccines in students entering college.

Before the new, low-potency (adult-type) combined diphtheria-tetanus toxoid was available, Schick testing was an important part of a program such as ours, enabling us to separate those who needed the combined toxoid from those who needed only tetanus toxoid, in order to reduce the reactions to the vaccines. The Schick test and the Schick control test, however, are time-consuming for both the Health Service personnel and the student and are quite difficult in a mass immunization program.

Since the low-potency diphtheria-tetanus vaccine was now available, we decided to study the reactions to this new material administered to a small group of students regardless of Schick status, with a view to the possible future elimination of the cumbersome Schick testing.

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[2] *Ibid.*

PLAN OF STUDY

Our plan of study was the same as that reported in 1957, except that after Schick testing all students entering the University in the spring quarter, 1958, were given aluminum phosphate adsorbed combined diphtheria-tetanus toxoid (for adult use)[3] without regard to Schick status. Each student receiving the immunizing agent was asked to return to the Health Service forty-eight hours later. At that time the site of the injection was inspected, the size of any local reaction measured in centimeters, and the degree of swelling noted. All measurements were made by two nurses who had been carefully instructed in the procedure to be used. At the same time each student was queried by the nurse as to whether he had had any signs of a constitutional reaction, such as chills, fever, or sweating episodes, and whether he had gone to bed because of the symptoms or had missed classes. The information obtained from the student was recorded on a special form.

Each student who reported to the nurse any kind of constitutional reaction was then seen by a physician. His temperature was taken, and a more complete history of the symptoms was obtained. Any further examination indicated was done. If the physician felt that the student needed therapy for the reaction, he was referred to one of the doctors in the Health Service dispensary for care.

RESULTS

Of the 192 students who reported back after forty-eight hours, 113 were Schick positive, 79 Schick negative. Of the Schick positives, 26 had reactions (7 "constitutional" as well as local) to the antigen. Of the 79 who were Schick negative, 11 had definite local reactions but there were no constitutional reactions.

With this relatively low reaction rate to guide us we have discontinued the routine use of the Schick test since the fall of 1958 and have routinely administered .5 cc. of the low-potency (adult-type) combined diphtheria-tetanus toxoid. All students are advised to repeat the diphtheria-tetanus injection in one to two months and again six to twelve months later.

[3] The material was furnished by the Wyeth Laboratories, Philadelphia.

RESULTS OF RECORD SURVEY

As pointed out in our previous publication it has been our impression that few students have enough discomfort from their toxoid injections to warrant their reporting to our dispensary for advice or treatment, in spite of the fact that students are urged to and do come in for minor complaints. In order to compare the relative frequency of these "spontaneous" visits because of reactions to the two types of combined toxoids, the Health Service charts were reviewed for a three-year period while we were using the alum-precipitated diphtheria-tetanus toxoid and for a later two-year period while we were using the low-potency adsorbed diphtheria-tetanus toxoid. The results of this survey are as follows:

1. Those making "spontaneous" dispensary visits for reactions to alum-precipitated combined diphtheria-tetanus toxoid during the three years from July 1, 1951—June 30, 1954. (These were all Schick positive.)

a) Total number visiting because of reactions: 23.

b) Total doses given: 9,574.

c) Ratio: 2.40 visits per 1,000 injections.

d) Two were hospitalized, each for one day.

2. Those making "spontaneous" dispensary visits for reactions to aluminum phosphate adsorbed combined diphtheria-tetanus toxoid (for adult use) during the two years, July 1, 1958–June 30, 1960. (These were not Schick tested.)

a) Total number visiting because of reactions: 58.

b) Total doses given: 28,921.

c) Ratio: 2.01 visits per 1,000 injections.

d) Three were hospitalized, each for one day.

COMMENT

It must be admitted that some of the local reactions seen after use of the low-potency vaccine were rather severe, with swelling of the entire arm including the forearm, and that about one-third of those with local reactions also had some general symptoms such as headache, fever, and malaise. It was interesting that some of those with rather severe local reactions after the first injection apparently took subsequent injections without sufficient discomfort

to return to the Health Service. On the other hand, there were some who saw fit to seek advice or treatment only after the second or third injection of the antigen. In general, though, the reactions seen after the low-potency combined antigen were of less severity than those seen previously with the alum-precipitated antigens.

We are convinced that the new, low-potency, (adult-type) adsorbed combined diphtheria-tetanus toxoid can be safely administered routinely to entering college students without prior Schick testing.

Legal and Ethical Standing Orders for Nurses*

D. K. GRANT, M.D., MEDICAL SERVICES, THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

THIS is my first contact with the American College Health Association. From what I hear of your splendid work and see of your members, I hope it is not my last. I am delighted that so many progressive and intelligent people are dedicated to the cause of keeping our young people well. Many of our students appear well-oriented to disease but not to health. They appear to know what to do when they become ill but from their actions seem to know very little about what to do to remain healthy. I find it is the same in industry, and I am pleased to say that we have mutual interests in keeping people well whether on the job or in the classroom.

PROGRESS IN NURSING

In the modern Western world the dynamic profession of nursing has undergone many changes in our generation. I am afraid Florence Nightingale would not recognize many of you even if

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you were carrying her lamp. Nurses are no longer confined to the bedside or the operating room, engaged solely in caring for the sick, injured, or expectant. Many have branched out into new and relatively unfamiliar fields. Nurses are now employed by government agencies, industries, and universities and are concerned with the much more positive and progressive obligation of preventing disease and improving the standard of health across the nation. Often such nurses fill a multiple role of counselor, teacher, therapist, administrator, technician, and personnel consultant. In the industrial or university health service the nurse occupies a strategic position by having a closer personal relationship to the employees and students than many of her co-workers on the health team. To most of them she is often the only visible evidence of the health or medical service. Indeed, the lady in white is a most important cog in the wheel of the college or occupational health program.

RELATIONSHIPS

The nurse's role in this setting is complicated by her relationships with several individuals or groups with quite different and sometimes opposing requirements.

1. The medical director. It is desirable in large colleges or industries for the nurse to receive professional guidance from a qualified physician. If a full-time physician is not feasible, arrangements should be made to have a physician on a part-time basis to provide supervision and a source of professional advice for the nurse. In some settings, of course, the nurse is entirely on her own but will arrange to have certain physicians on call for consultation purposes.

For her guidance during the physician's absence the nurse should be provided with a set of standard procedures or directives which have been discussed and agreed upon in consultation with her. These should be written and signed by the physician in charge.

2. Management. In the university health service this would be the college administrator. When a part-time or other physician-in-charge arrangement has been established, the nurse should report to the physician in all professional matters and to the college administrator or other designated member of faculty or manage-

ment on administrative matters. Such a manager should be familiar with the scope and limitations involved in the practice of nursing and should not expect or request the nurse to exceed her normal sphere of service.

3. Student or employee patients. The nurse must at all times maintain a personal and confidential professional relationship with the students and/or employees, a relationship which conforms with legal and ethical codes. If at all possible she should maintain a strictly neutral position when matters of conflict or discipline arise. She is in a position to promote understanding and appreciation of the benefits of the health service and to counsel students or employees in respect to maintenance and improvement of health.

The observance of professional confidence in dealing with patients is of the utmost importance. Indeed, a health service cannot operate effectively without this fundamental ethical relationship between the nurse and student patient. She should not be required by her supervisor to divulge confidential information about any patient without the person's written consent.

4. Community physicians. I think it is important that the nurse encourage each student or employee to have a personal physician. For students who are from out of town or for those who have neglected to establish a relationship with a family physician, she should seek the advice of her medical director in recommending a suitable doctor.

She should use discretion in the handling of illness and injury and any treatment prescribed should be in accordance with the directives of the physician in charge. Normally, the treatment would be just sufficient to allow the student to finish the day at classes or provide relief until he sees his family physician. I am assuming, of course, that the nurse is not employed in a college infirmary, established for the treatment of illness or injury. There should be no reluctance in referring any student or employee to the family physician for further treatment.

5. Community services. The university health nurse should be familiar with the various official and voluntary health agencies in any community. Co-operative relationships should be developed and maintained so that proper referrals can be made as the need arises.

6. Professional nursing organizations. It is desirable for the nurse to maintain membership in local and national nursing organizations, attend meetings, and participate in special courses and other educational activities in order to keep abreast of the latest developments in the field of medical and nursing sciences.

RESPONSIBILITIES

It is the physician's responsibility to define procedures for diagnosis and care of illness and injury and the nurse's responsibility to carry them out. The nurse should not normally be called upon to give instruction or to make decisions upon professional matters which do not fall within the field of her training and licensure. When the nurse is serving as direct assistant to the physician, she may perform many procedures some or all of which might not be permissible when working alone under indirect supervision.

It is difficult to specify the various procedures which invariably require direct personal medical supervision and those which can invariably be performed under the indirect supervision of written medical directives. They are subject to such variables as customs established through locally accepted practice, state or provincial medical and nursing practice regulations where they exist, the training and the experience of the nurse, and the availability and accessibility of physicians and other community medical services.

The nurse might normally be expected to "perform all those duties that may rightfully come within the scope of nursing; carry out faithfully all reasonable doctor's orders; avoid all acts which her conscience and judgment tell her are dangerous for the welfare of the patient; and in the absence of medical aid to do all that is within her power and skill in an emergency until the physician arrives to take over the responsibility of the case." [1] It is expected that in her professional care the nurse will use reasonable care and skill in dealing with her patient.

When functioning under indirect supervision the nurse must follow the medical directives or "standing orders" prepared for her guidance by the physician in charge. Such directives should embrace the types of minor injuries and ailments which might be

[1] Carl Sheffel, *Jurisprudence for Nurses* (2d ed.; New York: Lakeside, 1938), p. 48.

incurred by the students or employees, as the case may be, and should specify the kind of first aid or other treatment to be given with the physician in charge available on call.

Standing orders or directives of this type are not intended to be a substitute for medical care nor to give the health nurse permission to practice medicine, but are a realistic recognition of the fact that proper and careful attention by a professional nurse, with a physician available when needed, is much more to be desired than the common practice of self-medication or neglect of minor injuries and ailments when health services are not available.

In addition to her responsibilities in respect to treatment, the health nurse should engage in health counseling and education, participate in safety, hygiene, and welfare activities and environmental surveys, maintain the dispensary, supervise and train assistants, and keep records and other general details of routine health department procedures.

It has taken me some time to arrive at the actual discussion of legal and ethical standing orders, but I felt that certain general background is required before they can be properly considered. Obviously, in any medical standing orders there are both legal and ethical principles involved. For the most part we have already dealt with the ethical requirements in respect to physicians, patients, and management people. This is a rather nebulous field, but I am sure that you are all aware of the importance of maintaining an unblemished ethical relationship with your patients and with other people on the health team, in the university, and in the community. This is known as the "art of nursing" as opposed to the "science of nursing." Let us, therefore, devote the remainder of the time to a discussion of the legal principles involved.

LEGAL PRINCIPLES

This legal area is most unfamiliar to me. I do not mean by this that I am more familiar with illegal things, although it is said that everything that's interesting in life is either illegal, immoral, or fattening, and like most people I enjoy being interested. I have been told by certain facetious individuals that if it were not for

collusion and collision there would be no need for courts of law and lawyers.

It should be taken for granted that the legal aspects of nursing in the United States are even more unfamiliar to me than those in Canada and, as I understand it, more variable, since there are some fifty different state laws as compared with ten different provincial laws in Canada. In Canada the federal government provides legislation for criminal law whereas the provincial legislatures have the exclusive power to establish laws respecting property and civil rights. Judgments by the courts may form precedents which will be followed by other courts, and this is also a source of law. It is, therefore, evident that there will be a great many variations in law respecting the practice of nursing in each province.

We in the medical and nursing professions in Canada are rather fortunate that our courts are not inclined to be very sympathetic to private law suits for negligence in medical, surgical, hospital, and nursing care or treatment. I understand that the definition of negligence is as follows: "He is negligent who does that which a reasonable man would not do, or who neglects to do that which a reasonable man would do." [2]

I understand that in the United States doctors and nurses may be very readily and frequently haled into court by patients or relatives whose main object is to make some easy money by suing for negligence or malpractice. Fortunately for us in Canada this is discouraged by lawyers and magistrates, who tend to give more realistic (and welcome) support to the physician and/or the nurse.

It would be most unwise, however, for any nurse or doctor to become complacent about negligence, incompetence, or the assumption of responsibilities beyond their qualifications because of the fact that he or she works in a more favorable legal climate. Laws, trends, and attitudes of people change, and as I have pointed out, the practice of nursing has become increasingly complex and far-reaching, so that there is more susceptibility to criticism and perhaps legal action. With so many different authorities asking her for professional service, it seems to me that the nurse

[2] Gene Harrison, *The Nurse and the Law* (Philadelphia: Davis, 1945).

has some right to know where she stands legally in respect to her duties.

The physicians in Ontario have two quite independent bodies or associations: the Ontario Medical Association, to which most physicians belong, and the College of Physicians and Surgeons of Ontario, which is the licensing body and to which all physicians must pay an annual license fee in order to practice. The latter body establishes the rules and regulations and, if necessary, determines whether or not a physician is practicing legally and ethically. It seems to me that the nurses should have a similar setup, since all nurses in Ontario do not necessarily belong to the Registered Nurses Association of Ontario. If the nurses had a separate licensing body with members elected by all the nurses in the province, this committee or college could act as a licensing group and establish regulations or directives for nurses which could be brought before the legislature and have every hope of becoming legalized.

At the moment there are two provincial acts in Ontario in respect to training, registration, examination, and discipline for nurses, but nowhere is there to be found an actual definition of "nursing." Likewise, there is no law or regulation in existence in Ontario which restricts the nurse's activity. There are certain statements which have been set down by the College of Physicians and Surgeons of Ontario, and I will quote an example which appeared in 1958 in respect to intravenous therapy and anesthetics:

> The Medical Superintendent or Chief of Staff of any hospital may designate for giving of intravenous therapy one or more graduate nurses on the nursing staff who have been especially trained by the Medical Pathologist or qualified physician in the withdrawing of blood or giving of intravenous solutions and blood transfusions. A nurse so trained may do the usual drawing of blood for laboratory purposes and she may administer glucose or saline solutions intravenously or give blood transfusions but she must not give anesthetics (except in extreme emergencies).

I believe it is somewhat different in some parts of the United States, where specially trained nurses are allowed to administer anesthetics. The statements of the College of Physicians and Surgeons of Ontario also state that detailed instructions and written orders signed by a physician must be given before nurses carry

out any intravenous therapy. They also provide that the taking and recording of blood pressure may be assigned to nurses.[3]

Since there is in Ontario no legislation dealing with the scope of nurses' activities, each hospital is a legal entity with power to enact bylaws. The governing board of the hospital would no doubt take into account the foregoing and similar statements of the College of Physicians and Surgeons. It is quite possible that similar bylaws or medical directives or standing orders should be prepared for university health services and occupational health services by the physician in charge. This is particularly important if it is likely that nurses may be asked to perform treatments that are normally considered the prerogative of a physician.

If a patient sustained an injury and claimed it was due to negligent treatment by a nurse, the patient could bring legal action against the nurse and the hospital or health service of the organization employing her. If the right to administer the treatment using reasonable skill and care was given to the nurse by hospital bylaw or medical directive, the nurse would be protected, but the hospital or health service might be liable and held accountable.

Medical directives or standing orders prepared in this way are most useful, helpful, and protective for the nurse, particularly when she is sometimes at the beck and call of nonmedical or administrative management. They are also useful for her guidance in isolated areas where there is no doctor immediately available. Although one cannot dispute the value of such locally prepared directives, I believe that if they were prepared and approved by a licensing nursing body, they could be of general application throughout the province and perhaps could be legalized. It seems reasonable to expect that the general limitations and directives would be legalized and that each industry, college, or hospital involved in the province would then be responsible for preparing

[3] These statements were amended in 1960 to require that the medical authority of the hospital lay down specific instructions in writing rather than leave this to the individual doctor. The amendment defines intravenous medication more exactly and specifically permits the use by specially trained nurses of closed intravenous systems under direction by a physician. It precludes the use by the nurse of direct medication into the needle or the intravenous tube above the needle.

its own specific standing orders or directives within the body of and without changing the intent of the general legal directive.

Having established these facts, what type of standing orders should be prepared?

Generally speaking, it is difficult to make a clear-cut distinction between those acts which must be performed by a licensed physician and those which may be delegated to a nurse. One primary rule is that a physician may not properly delegate to a nonphysician the performance of any function requiring the exercise of professional medical judgment. For example, he may delegate the duty of taking temperatures or administering drugs at certain intervals, but he cannot employ a nurse to make a diagnosis or to prescribe a course of treatment. The physician is required to exercise professional judgment and discretion in making a diagnosis and prescribing treatment. The nurse, in carrying out the physician's orders, is required to exercise professional ability and skill. The health nurse must strive constantly to retain the role of nurse and should not accept employment which requires her to assume responsibility for service outside the sphere of her professional training and experience. She must bear in mind at all times that she is required to perform duties assumed by her in a competent manner and that she may be personally responsible for wrongful acts or negligence even if performed under the authority of a physician. As we have said, however, it is much less likely that she will be held responsible if the physician was actually in charge or if she is protected by definite instructions.

In establishing the medical directives or standing orders there should be mutual agreement by the nurse and the physician in charge. When the orders have been prepared and agreed to by all parties concerned, they should be signed by the medical director of the health service. It is apparent that the need for standing orders varies inversely with the amount of personal supervision exercised by the physician. It is equally obvious that standing orders cannot be written to meet every situation which is likely to arise in a health service. They must be modified to meet specific requirements and in accordance with the training and professional competence of the nursing staff. The standing orders should be

complete and should provide sufficient detail of management and treatment to enable the nurse to carry on without the direct supervision of a physician. It is wise in such orders to specify the boundaries or limitations of treatment which should be undertaken.

It is not properly my purpose here to set down details of such standing orders, but I have tried to establish the need for and the principles involved in preparing such directives in a health service for a college or university. There should be five broad classifications under which the orders are written:

1. Administrative. This would have to do with such things as the reporting of sickness and injury, sick benefit and workmen's compensation procedure peculiar to the institution, policy in respect to insurance coverage, local community welfare groups, home visiting, relationship with management, and any other areas which are likely to be encountered by the nurse in the health service. It is evident that many of these are not normally taught in any nursing course.

2. Emergency procedures. This would include brief instructions as to what to do about calling the physician or the ambulance, controlling hemorrhage, restoring breathing, preventing shock and infection, managing unconsciousness, and any other emergencies likely to be encountered.

3. Nursing management of injuries. One need not elaborate these since they are well covered in any number of recognized nursing, surgical, and first aid publications.

4. Nursing management of illness. This is also well covered in nursing and medical textbooks, but special attention may be drawn to illnesses peculiar to college students or employees in the college or community where the nurse is employed. Both of these sections on injuries and illness should specify the limitations of treatment beyond which it would be unwise for the nurse to proceed.

5. Counseling. Some may think it difficult to set down definite procedures in counseling, but there are a few well-recognized fundamental principles which could be established in the standing orders by the medical director, the nurse, and personnel representatives or psychologists if necessary.

It is again emphasized that the nature of the standing orders

will depend a great deal upon the circumstances and customs in the particular institution or location. What it is customary to do under certain circumstances governs many of our actions both in medicine and nursing and in normal everyday life.

This question of legal and ethical standing orders for nurses is a vast one, and I have merely skimmed the surface. In closing I would like to say that over the years physicians have appeared to take the initiative, but I believe that the nursing profession is now quite capable of establishing its own standing orders in consultation with physicians, provided that the profession goes about it in the right way. With typical women's intuition I think we can take it for granted that you will.

The Treatment of Acne with Tolbutamide*

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APPROXIMATELY one year ago, Doctors Cohen and Cohen of Windsor, Ontario, and Detroit, Michigan, reported rather marked success in the treatment of acne vulgaris and other forms of pustular dermatoses with tolbutamide.[1] In their series of twenty-six patients on this therapy, all patients except one experienced fair to excellent results. The one failure was in a woman who was evidently allergic to the drug. They concluded that tolbutamide aids in controlling pyogenic infections of the skin and postulated that in acne there is a disturbance of carbohydrate metabolism involving only the tissues of the skin, the so-called skin diabetes.

Since this report, the use of tolbutamide in the treatment of acne vulgaris has become popular in our community and I understand is being used rather widely. When we in the Student Health Department at the University of Wisconsin were approached with the suggestion that this might be of help to us in our treatment of the many college-age students with acne, we decided that a controlled study should be done before using the drug in this type of dermatitis carte blanche. Through the co-operation of the Medical Research Department of the Upjohn Company we were able to set up a double blind study aimed at evaluating the effect of tolbutamide on pustular acne.

* Presented before the Section on Clinical Medicine, American College Health Association, Thirty-eighth Annual Meeting, Toronto, April 28, 1960.

[1] J. L. Cohen and A. D. Cohen, Pustular Acne and Staphyloderma and Its Treatment with Tolbutamide, *Canad. Med. Ass. J.*, *80:* 629–632, 1959.

METHODS

Tablets were furnished to us by the Upjohn Company identified only by labels 1F and 2F. Which of these was tolbutamide and which was placebo was known only to the Medical Research Department of the Upjohn Company. All patients in the study had typical pustular acne seen so frequently in the college age group. Some of them had more cystic disease than others, but generally a fairly uniform group of patients was obtained as subjects. Alternate patients were given the 1F and 2F tablets, one, twice daily, and were asked to report at two-week intervals for follow-up examinations. In those patients following a certain regimen before tolbutamide or placebo therapy, no change of topical therapy was made, since it was felt that a clinical base line had been established and any change could be credited to the drug. New patients were given the tablets only. On each visit a card questionnaire was given to the subject to be filled out as to his or her opinion of the progress of their disease. On this questionnaire was space available for remarks by the examining physician.

All subjects were photographed at the beginning of the study and at the end of three months medication. Fasting blood sugars were also determined at the beginning to rule out diabetes mellitus and for a base line in the event any of the patients developed symptoms suggesting hypoglycemia. At the end of the three-months period a final evaluation was made by the patient and the physician and an evaluation for signs of improvement was made by an impartial dermatologist who reviewed the before and after photographs.

RESULTS

Of the seventeen patients who completed the three month course taking the tablet labeled 1F, there were eight whose progress was reported as improved by all three methods of evaluation. Four were reported as unchanged by all three opinions, two were reported as improved by two of the three methods of evaluation, and three were reported as showing no change by two of the three methods of evaluation. Two of the cases were reported as worse by picture evaluation.

Table 1. Seventeen patients on tablet 1F

	Improved	Same	Worse
Physician's opinion	10	7	0
Patient's opinion	10	6	1
Photo evaluation	9	6	2

Of the sixteen patients on the tablets labeled 2F, thirteen completed the three-month course. Three became discouraged and dropped out of the study within six weeks. Four of these thirteen were considered improved by all three methods of evaluation. Six patients were reported as unchanged by two of the three methods, three patients were reported as improved by two of the three methods, and two were reported as worse by one of the three methods.

Table 2. Thirteen patients on tablet 2F

	Improved	Same	Worse
Physician's opinion	7	6	0
Patient's opinion	8	5	0
Photo evaluation	5	6	2

Gross analysis of these evaluations would indicate that a higher percentage of patients in the group on the tablet labeled 1F were judged as showing improvement than those in the group on the tablet labeled 2F. At this point, because we had promised these patients who ultimately would be found to have been taking a placebo the actual drug, it was necessary for us to find out which was the drug. We were somewhat surprised to find that the tablet labeled 1F was the placebo while the 2F tablet was tolbutamide. Of ten of these patients who were given the tolbutamide in place of the placebo at the end of the three months, four are reported as improved, three as worse, and three as unchanged up to the time of this report. No adverse reactions or side effects were noted in either series.

We have again been impressed in this study with the difficulty of evaluating any therapy for acne vulgaris. The role of emotions

in remissions and exacerbations of this disease is well known and yet cannot be measured clinically. Hormonal effects certainly enter into the picture and tend to cloud the issue. Certainly the result of tolbutamide therapy in our small series of cases does not confirm the results as reported by Cohen and Cohen. A previous report from this institution on the use of antibiotics in the treatment of pustular acne shows a result from therapy by these agents superior to that from therapy by the oral hypoglycemic agent used in the present study.[2] In addition to the usual dietary, vitamin, and local therapeutic measures, intermittent antibiotic administration still remains our treatment choice in this disturbing disease of college-age people.

[2] S. A. Johnson, D. S. Schuster, and F. A. Grimstad, Clinical Observations on the Use of Erythromycin in Acne Vulgaris and Some Pyogenic Skin Infections, *Antibiot. Ann.*, 1956–1957, pp. 139-146.

Health Interest and Needs of Pupils as a Basis for Teacher Preparation*

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HEALTH educators have been aware of the importance of recognizing and fulfilling the needs and interests of school children for many years. Many individuals and groups within the field of health have gone on record to state that the health educator's greatest responsibility, contribution, and task lie in meeting the health needs and interests of children. The degree to which we are accomplishing this responsibility is questionable. Health educators need to be constantly evaluating their teaching in light of these criteria.

A most significant question to be answered is, "Are teachers meeting the school child's needs and interests or their own?" The latter seems more plausible if teachers tend to teach that which they know best and in the way in which it was presented to them.

The obvious next question is whether or not our teacher-preparatory curriculums in health are geared to the needs of the college student or the college teacher. If a wide gap exists between what we know is desirable and what is practiced, our teacher-preparatory schools are performing a disservice to the future health teachers.

* Presented before the Section on Health Education, American College Health Association, Thirty-eighth Annual Meeting, Toronto, April 29, 1960.

An extensive investigation was made by the writer to determine the health needs and interests of secondary school students. An examination of health-teacher preparation curriculums and actual health needs and interests, as discovered in this study, seems to bear out, at least in part, the above statements. It would seem desirable at this point briefly to acquaint the reader with some information on the study just mentioned.

Most health teachers are confronted with a number of problems when trying to determine content for the health course, such as, how to evaluate for needs and interests, what teaching materials to use, what to teach out of textbooks which have too much material and possibly are too difficult, and so on.

In this study, however, the assumption was made that teachers resolve these problems by teaching from the textbook their school has purchased, starting on page one and going as far as they are able to in the allotted time. Generally, health textbooks at the high school level are written by reputable people in the field, and valid and reliable health information is presented in the texts. Furthermore, the multitude of material supplied in the texts can, conceivably, meet the needs and interests of the students. The problem is, what material needs to be emphasized? An instrument for identifying health needs and interests was developed, on the basis of the contents of high school health textbooks. The inventory used in this study included ten health areas and 207 specific health-concept statements. Four adaptations of the inventory were developed to be administered to students, parents, health educators, and medical doctors. It was felt that by contacting all these groups a more accurate description of the health needs and interests of high school students could be obtained.

The results of this study were both interesting and enlightening. A very general summary of the results of the study, in terms of the general health areas, is contained in the following discussion.

The students themselves expressed the highest interest in the areas of understanding mental health and mental illness and personal care of the body and the lowest interest in food needs of the body and the structure and function of the human body.

In general, the students expressed a need to learn about the functional or practical aspects of health. They indicated the high-

est interest in subject matter which deals with their physical and emotional development. Although their needs and interests appear to be similar, a closer examination reveals that the students did discriminate between needs and interests. This was especially true on the specific health concepts.

The parents felt their high school sons and daughters had the greatest need to learn about mental health and mental illness, harmful habit-forming substances, and food needs of the body, and the least need to learn about the structure and function of the human body and medical advances for health.

The health educators felt high school students have the greatest need to learn about mental health and mental illness and harmful habit-forming substances and the least need to learn about medical advances for health, official and voluntary health programs, and community health services and facilities.

The medical doctors felt that high school students have the greatest need to learn about the areas of personal care of the body, mental health and mental illness, and harmful habit-forming substances, and the least need to learn about medical advances for health and the structure and function of the human body.

In general, all the adult groups indicated that high school students have the greatest need to learn about those subjects dealing with caring for one's self and being able to cope with life's situations.

It should be noted here that some health areas received little emphasis by all the groups, but some specific concepts did receive a high emphasis. All groups indicated that high school students need to learn about such concepts as "the control of diseases which spread from one person to another," "how to choose and when to call a doctor," and "the effects of self-diagnosis and treatment."

Correlations were computed to determine the degree of agreement among the various groups. The computations resulted in some extremely interesting and significant findings. The range of correlations was .13 to .96 or a range of .83, which indicates a wide variability in the degree of agreement between the various groups.

There was a relatively high correlation between felt needs and interests as expressed by the students, with good agreement in all areas except food needs of the body. A breakdown within the

student sample reveals, regardless of the type of breakdown, that students have a common core of interests but their felt needs vary to a great extent. In general, there were marked differences between boys and girls on what they feel they need to learn. This may support the separation of the sexes for the health class. Needs expressed by urban and rural students were markedly different, although their interests were fairly similar. Throughout the comparisons of the student portion of the sample, the boys indicated a high need to learn about food needs. In contrast, the girls expressed an extremely low need to learn about this area.

There was a relatively low correlation between students and adults on what they felt high school students need to learn about health, although there was agreement in some of the areas. To a large extent the adults were in agreement on the basic health needs of the high school student.

In summary, the students and adults involved in the study gave the most emphasis to and had the most agreement on the areas of understanding mental health and mental illness, personal care of the body, understanding harmful habit-forming substances, and the importance of activity and rest to health. Therefore, these areas appear to be the most important areas for inclusion in the high school health course.

The students and adults were also in general agreement that the areas of structure and function of the human body, community health services and facilities, and official and voluntary health programs be given the least emphasis. Therefore, these areas appear to be least desirable for inclusion in a high school health course. It must be kept in mind that there were exceptions to the general feelings and/or opinions expressed on the health areas.

In addition to common agreement on the areas, there was also agreement by all the groups on specific concepts, both on those concepts needing much emphasis and on those needing little emphasis.

How can student health needs and interests, once discovered, be met by our health teachers in secondary schools? Meeting these criteria will certainly provide a more beneficial learning experience for high school students. One avenue by which this problem can be approached is to encourage the present health

teachers to emphasize those areas and specific concepts found to be of greatest importance. This could be accomplished through mass circulation of these needs and interests to all health teachers. Other ways to make teachers aware of health needs and interests and the importance of meeting them would be through in-service training, curriculum conferences, workshops, and course work in graduate schools. However, if the statements made early in this paper are true, it would seem that these procedures would leave much to be desired. This is not to say that approaching present health teachers would be totally unfruitful.

It is obvious that there is a need for a valid and reliable study of what is being taught in actuality rather than in theory in both our high schools and our college-preparatory institutions. Knowing what is being taught to our prospective health teachers, we could make appropriate changes in the curriculums. As a result the future crop of health teachers would be more likely to be qualified to meet the needs and interests of secondary school students.

The improbability of making major changes in our present health teachers makes it imperative that teacher-preparatory schools provide the impetus. The situations, experiences, and environment during college life greatly influence the way a person will teach in the future.

Some of the important considerations in the preparation of secondary school health teachers, based upon the needs and interests of high school students, are:

1. Study of the natural and social sciences is a prerequisite for understanding physical, mental, and social health problems. A degree of competency in the natural and social sciences will better enable the prospective secondary school health teacher to comprehend student health problems in their environment. A student majoring in health education very logically could have minors in science and in social science.

2. The professional preparation of future health teachers should include such courses as personal and community health, family living, first aid, safety, organization and administration of the school health program, tests and measurements, and methods and participation in health education.

3. The areas found to be of greatest importance for inclusion in a high school health course were understanding mental health and mental illness, personal care of the body, understanding harmful habit-forming substances, and the importance of activity and rest to health. It would seem imperative that this subject matter be included in the prospective health teacher's curriculum. The inclusion of such courses will better qualify the teacher to meet the needs and interests of secondary school students.

Courses in general psychology, adolescent psychology, child growth and development, the exceptional child, and principles of guidance will give the college student a knowledge and understanding of mental health and mental illness. In addition to knowing how to teach for mental health, he will be alert for deviations from the normal among his students.

Courses in personal hygiene, nutrition, and information about communicable diseases and their control through a community hygiene course will give the college student a knowledge and understanding of personal care of the body.

A course in physiology will give the college student information about the physiological effects of habit-forming substances on the body. A course in chemistry will better enable him to understand the chemistry of narcotics.

Courses in physiology will also provide the college student with information about the physiological effects of exercise on the body. An understanding of the anatomical structure of the body will be gained through an anatomy course.

If future health teachers are exposed to these experiences during their college life, they will be better prepared and qualified to do the kind of teaching needed by our secondary school students.

4. The past and present practice of having persons from related areas teach health brings up the question of their health-education preparation. Teachers of general science, biology, physical education, and home economics, are among those asked to teach health courses. Courses in personal and community health, organization and administration of the school health program, and methods and participation in health education constitute minimum requirements for this type of health teacher.

5. It would also seem desirable for senior undergraduate majors

in health and related areas to take a seminar in health. The content of such a course would be primarily subject matter. Its object would be to bring students up to date again on new developments in various subject-matter areas and to emphasize the important areas to be included in the high school curriculum. The subject matter would be taught by the college teacher and by students, the students preparing detailed class notes for presentation and evaluation by the instructor.

6. This plan is even more applicable to graduate students. It would seem desirable for them to have such a course just prior to leaving graduate school. After extended graduate study in a narrow area of health education, the broad concepts of health sciences need to be revised. This type of course would also revitalize the thinking of students whose undergraduate preparation was not entirely satisfactory.

An examination of the preparation of secondary school health teachers indicates a partial void in preparing them to meet the needs and interests of high school students. Now is the time to examine our preparatory curriculums and make the necessary realistic and practical changes.

The Use of Sulfadimethoxine in Student Health Practice*

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BACTERIAL infection is one of the most common problems confronting the physician engaged in student health work. Many agents are available to treat these infections. No one drug is ideally suited for all needs. The physician is confronted daily by new synthetic antibiotics, new combinations of antibiotics, and new forms of antibiotics.

The ideal chemotherapeutic drug should be effective in eliminating the pathogen and virtually nontoxic to the patient. Of secondary importance are the cost of the medication, convenience of dosage intervals, and palatability.

Sulfadimethoxine (2,4-dimethoxy-6-sulfanilamido-1,3-diazine) is a new long-acting sulfonamide which seems to satisfy these criteria. Initial animal studies in 1958 revealed a broad spectrum of prophylactic activity against common pathogens.[1]

A flood of studies confirming the results in humans followed. The drug is rapidly absorbed by the oral route reaching high plasma levels in four to six hours and maintaining a high level for at least twenty-four hours after a single oral dose. In the blood stream only about 10 per cent is conjugated, the remainder being

* The sulfadimethoxine (Madribon) used in this study was supplied by Hoffman-LaRoche Inc., Nutley, New Jersey.

The author is indebted to the entire Student Health Department of San Jose State College for their co-operation in this project.

[1] R. J. Schnitzer, W. F. DeLorenzo, E. Grunberg, and R. Russomanno, Chemotherapeutic Studies with 2,4-Dimethoxy-6-Sulfanilamido-1,3-Diazine, *Proc. Soc. Exper. Biol. Med.*, *99:* 421–424, 1958.

the free, antibacterial, active form. It is slowly excreted in the urine 15 to 25 per cent as a conjugated form.[2]

Many reports of clinical success have appeared. Sulfadimethoxine was shown to give good results in respiratory infections, ear infections, urologic conditions, and skin infections, including acne. Satisfactory results were obtained in 286 of 325 patients suffering from a wide variety of infections.[3]

Few unpleasant side effects have been observed. Mild rashes, urticaria, and transient neutropenia have been noted. Renal damage is unlikely because excretion is largely in a soluble, active form. Headaches and vomiting have been noted, but these symptoms may have resulted from the infectious process and were not noted by most observers. It is interesting that a thirty-five-pound, four-year-old boy accidentally took twelve 0.5 gm. tablets on an empty stomach and experienced no nausea or vomiting.[4]

METHODS

In the present study sulfadimethoxine was administered to students in the outpatient service at San Jose State College. Patients who were felt, on the basis of clinical findings, to have bacterial infections were selected for treatment. There were nearly equal numbers of males and females with an age range from eighteen to forty-one years.

Patients were given an initial dose of 1 or 2 gm. of sulfadimethoxine depending upon clinical estimations of the severity of their disease. Maintenance doses of 0.5 or 1.0 gm. were given to make a total of at least seven days of therapy. In many cases that were started on the higher dosage, it was possible to reduce the maintenance dose to 0.5 gm. near the end of the treatment. Results are presented in Table 1.

A "good" response in all cases except acne was defined as defi-

[2] W. P. Boger, A New Long-acting Antibacterial Sulfonamide, 2,4-Dimethoxy-6-Sulfanilamido-1,3-Diazine: A Comparative Study, *Antibiot. Ann.*, 1958–1959, pp. 48–55.

[3] T. Sakuma, C. W. Daeschner, and E. M. Yow, Studies on the Absorption, Distribution, Excretion, and Use of a New Long-acting Sulfonamide (Sulfadimethoxine) in Children and in Adults, *Amer. J. Med. Sci., 239:* 92–103, 1960.

[4] B. H. Leming, Jr., C. Flanigan, Jr., and B. R. Jennings, Clinical Evaluation of Sulfadimethoxine (Madribon), A Wide-Spectrum Antibacterial, *Antibiot. Med., 6:* 32–39, 1959.

Table 1. Results of treatment with sulfadimethoxine

Disease	Good	Fair	Poor	Total cases
Pharyngitis and tonsillitis	57	1	4	62
Otitis	8		1	9
Urinary infections	7	1		8
Cellulitis, abcess, or inf. cysts	22	4	3	29
Acne or folliculitis	11		1	12
Total	105	6	9	120
	(87.5%)	(5.0%)	(7.5%)	

nite objective and subjective improvement in twenty-four to forty-eight hours with continued improvement to complete return of health. Cases of acne were considered "good" if there was improvement by the end of seven days treatment. "Fair" was defined as slower but definite improvement. "Poor" was defined as no appreciable reaction to the drug. Sulfadimethoxine was used as the sole drug in most cases, but in a few it was used where other drugs had failed, and in the "poor" results other drugs were added when no response was evident.

In addition to the patients included in Table 1, nineteen other patients received sulfadimethoxine. These were considered on evaluation to have miscellaneous conditions such as infectious mononucleosis, measles, allergy, viral infections, and prophylactic indications which were not clearly bacterial. They were excluded from the basic study. Seventeen of these patients had "good" results, but it was felt unfair to include them in the sample. An additional three patients were lost to follow-up. All other patients were followed until clinically well.

Cultures revealed many of the usual pathogens including streptococcus, staphylococcus, and pneumococcus. Sensitivity studies were seldom helpful, as in vitro studies of sulfonamides are well known to be invalid. As an example of this, sulfadimethoxine was given continuously for six months to a group of thirty-five paraplegics. In vitro organisms cultured from their urine were completely resistant to sulfadimethoxine, yet none developed a clinical bladder infection while on prophylactic medication.[5]

[5] R. E. Bagdon, L. O. Randall, and W. A. Leff, Pharmacological Studies with Sulfadimethoxine, *Ann. N.Y. Acad. Sci.*, *82:* 3–9, 1959.

RESULTS AND DISCUSSION

In the 139 patients who were followed, no toxic responses were noted. "Good" results were obtained in 87.5 per cent, "fair" results in 5 per cent, and "poor" results in 7.5 per cent of the cases. These figures compare favorably with similar studies for this and other chemotherapeutic agents. No effort was made to compare sulfadimethoxine directly with any other drug. These figures only help confirm that sulfadimethoxine is effective in a number of disease states and relatively free of side reactions.

The preponderance of cases were pharyngitis and tonsillitis, which in our practice is the most common indication for antibacterial therapy. Here 92 per cent of the patients obtained "good" results.

The secondary considerations in the use of sulfadimethoxine are very appealing. No injections are required. It is available in tablets and as a suspension. Adequate therapeutic levels can be maintained with a single daily oral dose. This results in better patient co-operation and eliminates the need for interrupting sleep as in the "every six hours" dosage of many antibiotics.

The maintenance dose of one or two tablets daily of a less expensive drug pleases patients. More important, because of lower cost it is possible to treat each patient at least seven days. With other more costly preparations there is a tendency to stop therapy in three or four days when there has been a good clinical response. Even when the physician prescribes a full dose, the impecunious student may obtain only half the prescription. This is often a false economy, as the disease may recur with resistant strains emerging.

SUMMARY AND CONCLUSIONS

One hundred and twenty patients clinically suffering from a variety of bacterial infections were treated with sulfadimethoxine. "Good" results were obtained in 87.5 per cent of the cases. No toxic effects were observed. This confirms the efficacy and safety noted in other studies. The advantages of low cost and single daily dosage are noted.

A College Mental Health Consultation Program*

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ALTHOUGH college mental health facilities in the United States have predominantly provided direct treatment and evaluation services to emotionally troubled and mentally ill students, recently more attention has been directed toward consultative services as well. With the great and seemingly ever growing demand for treatment services to the individual student, college mental health [1] personnel have found that most or all of their time goes toward meeting this demand, with the result that other kinds of services receive less attention. Referring to this situation, Dr. Dana Farnsworth, at a recent meeting of the American College Health Association, stressed that both treatment and consultative services are needed and that in fact each may provide the "raw material" and the concrete understanding that can enrich the practice of the other.

In the past two years at the University of Pennsylvania the staff of the Mental Health Clinic, a part of the Student Health Service, has been seeking ways of developing and carrying out a mental

* This article is in part based on the writer's unpublished Advanced Curriculum Project, "Discovering a Helping Base for the Social Work Consultation Function in a University Mental Health Clinic," written in partial fulfillment of the requirements for the Advanced Curriculum Certificate, School of Social Work, University of Pennsylvania, 1959.

[1] For simplicity, the terms "mental health services" and "psychiatric services" are used synonymously, and will assume the presence of psychiatrist, psychologist, and/or social worker. Similarly, the terms "college" and "university" are here used interchangeably.

health consultation program. When we speak of mental health consultation, we have in mind broad professional contacts, including counsel, teaching, and community organization. More specifically, we view consultation as

> a way of giving advice and counsel . . . through a professional relationship . . . to the person who is carrying direct responsibility for action. This is in contrast to *working directly with* a patient or client, a staff, or a community as is true, for example, in casework, psychotherapeutic, supervisory, or administrative roles. Consultation is focused on a specific problem in a specific area . . . ; its purpose is to add to and enhance the knowledge and understanding of the person seeking help in order to solve a particular problem.[2]

Our program has been based on the premise that the university is concerned not only with the learning of facts but also with their meaning to students. Therefore, we are concerned with students' emotions and values, and their personality growth, especially if we see intellectual learning and personality growth as being reciprocal, each taking place within the context of the other.

A mental health program is concerned with students' learning —their growth—on several levels, each of which closely affects the others and contributes to or detracts from the ultimate value of college for each student. Viewed in this manner, there are many specific ways of effecting such a program. One approach is to work directly with student groups and organizations on some concern of theirs relating to mental health, such as their sponsorship of talks, films, discussion sessions, or the writing of campus newspaper articles. For example, after discussions with the deans of men and women, we approached the two student unions in regard to their interests in the area of mental health. Through planning with the social worker, the officers and directors of each organization developed a program in this general area of particular interest to them. The women's student union ran a series of small discussion meetings on human relations, including family relationships, group relations, marriage, the art of love, and self-realization.

The men's student union organized a panel discussion on William H. Whyte's book, *The Organization Man*, which was being widely

[2] Doris Siegal, "Consultation: Some Guiding Principles," in *Administration, Supervision and Consultation* (New York: Family Service Ass. of America, 1955), p. 100.

discussed on the campus at the time. Presented during Mental Health Week, the program topic was "The Organization Man—A Detriment to Mental Health?" The panel consisted of the psychiatric director of the Mental Health Clinic, an outspoken member of the political science department, and a well-known member of the sociology department. A member of the English department served as moderator. In addition to the values gained by the overflow turnout of students and faculty, the program had perhaps an even greater value for the students who organized it because of their direct involvement and responsibility.

Perhaps this direct involvement and responsibility are to a great extent the principal values which a number of college students have derived from volunteer activities in the psychiatric field. Although there have been volunteer programs carried on by college students elsewhere, notably in the Boston area,[3] the idea did not take hold at the University of Pennsylvania even after several efforts on our part to stimulate interest. We finally decided to explore the matter with an *ad hoc* committee of selected student leaders representing the student government, the dormitories, fraternities, and sororities, the religious organizations, the two student newspapers and radio station, and several student service and preprofessional organizations. During the planning the social worker conferred with the deans of men and women and with many of the advisors to the student groups involved, as well as with the local mental health association and two hospitals which had volunteer programs. At the social worker's initial meeting with the student leaders he cited the need for volunteer work with psychiatric hospital patients. The emphasis, however, was on the following question: What is the value and meaning of such a program to Pennsylvania students? After three meetings the committee gave responsibility for such a program to the Psychological Society, which had expressed interest in assuming this responsibility. Already this fall (1959) students have begun volunteer activities on the psychiatric wards of nearby Philadelphia General Hospital.

Although the services of a college mental health clinic may re-

[3] S. M. Spencer, They Befriend the Mentally Ill; Volunteers from College Campuses, *Saturday Evening Post, 230:* 19–21 and later, 1957.

sult in the direct involvement of students in matters relating to mental health, these services may be indirect in that the clinic staff works together with college administration and faculty. In fact, our experience has been that even "direct" consultation services should usually be conducted only with appropriate university staff included in their planning and implementation. Areas of "indirect" concern may include disciplinary policies and practices, academic standards and expectations, dormitory counseling and student orientation programs, policies and practices with regard to fraternities, sororities, and so on.

An example involving a consultation service to nonprofessional men's dormitory counselors may help in understanding this kind of aid more clearly. These counselors are graduate students who live among undergraduate resident male students and act as informal advisors, especially to freshmen. Since the beginning of the counseling program in 1956 one or more of the clinic staff has met for a discussion session with the counselors sometime during the year, but this session seemed to have limited value in the largely question-and-answer form that it took. By the fall of 1958 the clinic staff as well as the dean of men and assistant dean in charge of resident counselors felt a need for some change in these sessions. The following summary describes the activity of the psychiatric social worker in relation to this problem.

I initiated a meeting with the dean of men in order to discuss our ideas with him. Out of this meeting came the plan for me to work together with the assistant dean on a specific program in regard to the dormitory counselors. Through the process of several conferences an initial program was drawn up, one which evolved greatly as we gained further experience during the year. We began with a voluntary group of twelve counselors, but soon the assistant dean felt that there was sufficient need on the part of all counselors to require attendance and to form additional groups. The groups consisted of twelve to seventeen members with the meetings planned to provide continuity of experience.

At a session in December 1958, with a group of counselors for freshman students, several areas of basic importance were discussed. After my introductory remarks about the previously announced topic, "How far does the dormitory counselor go with students—in regard to academic failure, students' private lives, and their families?" the counselors soon got to the difficulty of simultaneously carrying a "helping" role and a

"disciplinary" role. The group disagreed as to whether these roles are compatible. I noted their concern about authority and discipline diminishing the counselor's helpfulness to his counselees in other respects. The group discussed how discipline might be applied with the least antagonism and reaction from the student. The group spoke, also, about avoiding the impression that a counselor's discipline involves personal feelings or gripes, and agreed on the importance of his not holding a grudge.

I added emphasis to their steering away from "personal involvement" as a more helpful way in which they can fulfill their role. However, I noted that the entire discussion had implied that "discipline" is not "helpful," that there was a dichotomy in their role, and I wondered if this were necessarily so. Could they see that discipline might be helpful, too, that it might help a student to find his own responsibility and to grow up?

There was general agreement with several examples of students who had maintained a positive relationship towards their counselors after being disciplined in some way for their behavior. The group minimized one counselor's recent experience in which a student, twice warned and disciplined, would no longer speak to him in spite of the counselor's subsequent overtures. I cited this as the other side of the disciplinary role, one which could be hard to bear and one in which they could ask themselves, "Am I being helpful in this way?" I spoke of the importance, though, of the counselor's not holding the student's disaffection against him but trying to make it still possible for the student to come to him.

Subsequently the group discussed the greater difficulties generally faced by the younger counselors because of the lesser differentiation in age and experience from their counselees, and considered for all counselors the problems which can arise when the counselor intervenes too often in dealing with student dormitory behavior. . . . There was spirited discussion of the counseling role in regard to students' academic difficulties, especially the matter of contacting parents. I helped the group to find some balance between the need at times to take steps beyond what students may wish and the fundamental importance of helping students with their own choice and responsibility. The group touched also on the matter of being "available" to counselees yet filling the counselors' own need for some privacy. Before ending I summarized our session.

This meeting was one of a series held during the year. The assistant dean of men, responsible administratively for the dormitory counseling programs, was present at each meeting; plans for

the meetings were made with him. The focus of the meetings varied, but several major areas have stood out: (1) the dilemma of reconciling in a helpful way the "disciplinary" and "counseling" elements of the dormitory counselor's role, (2) adolescent growth and behavior in their healthy and pathological aspects, (3) academic failure, and (4) the changing needs of the students as they progress in school, and what changes this calls for in the counseling role. The focus of these discussion sessions, it will be noticed, was ultimately on the counseling role. The psychiatric social worker served as a consultant; he carried no supervisory or administrative authority with respect to the counselors.

In these examples of mental health consultation the social worker carried the major role. Conceivably the entire staff of a campus mental health clinic might fill such a consultant's role, each member in a way appropriate to his professional knowledge and competence. While it is recognized what the staff members may do in common, it seems pertinent to ask what each discipline may contribute uniquely, in order that we may understand and value this contribution and use it to best advantage.

In this context the psychiatric social worker has a particular body of knowledge and experience which helps him to understand social, cultural, and other environmental forces and the individual's interrelationship with them. He has the skill to assist individuals and groups to deal with social relationships and realities. The social worker may have added areas of competence because of personal attributes and additional training. But he is fundamentally competent to help the individual, singly and in groups, with respect to the use he will make of the experiences which reality forces on him or affords him.[4] The social worker's uniqueness lies also in the image he carries of "wellness" and of adequate functioning, an image, for example, that is not so commonly held of the physician and the psychiatrist, who are more likely to be identified with pathology. Therefore, in a mental health consultative role the social worker is not only a specialist in social and community relationships, but the very image he carries offers advantages in

[4] For further development of this concept, see: Helen Padula and Marian Munro, Thoughts on the Nature of the Social Work Profession, *Social Work, 4:* 98–104, 1959. Also see: Werner W. Boehm, The Nature of Social Work, *Social Work, 3:* 10–18, 1958.

working more inclusively with the whole of reality, with an emphasis on the healthy, functioning part of the individual student, the group, and the college community. However, at least in the beginning, he may have a handicap because of the lesser recognition that the profession of social work receives as compared to the recognition that psychiatry and psychology enjoy.[5]

Each professional discipline, then, has a unique contribution to make to a mental health program, a contribution which may be enhanced when made within the context of the psychiatric team. Each discipline can contribute both to the inner functioning of the team and to its services to the college. Nevertheless, the basic questions remain: What responsibilities and opportunities are there for the college mental health services to contribute to the functioning of the college? How may these services contribute to the students' intellectual, emotional, and vocational growth? How may they supplement the faculty's and the administration's roles with students?

The service of a college mental health clinic to troubled individual students has been widely recognized. The experience of the Mental Health Clinic at the University of Pennsylvania, especially during the past year, increasingly indicates that through a mental health consultative service a college mental health clinic can make a contribution to the functioning and development of emotionally healthy students as well as to that of disturbed students. The program described in this article is being developed to meet the needs and opportunities existing at the University of Pennsylvania. Programs elsewhere might have their similarities and differences according to the conditions specific to each college—its staff and students, its traditions, and its goals and visions of the future.

[5] Alfred Kadushin, Prestige of Social Work—Facts and Factors, *Social Work, 3:* 37–43, 1958.

Environmental Health Services for Medical Research Centers*

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EXPERIENCES drawn from environmental health services furnished to the National Institutes of Health during the past seven years have largely served as a background for the preparation of this paper. Until mid-1953 the Institutes had been engaged in basic biomedical research with no immediate facilities for clinical investigations. At that time the Clinical Center, a combined laboratory structure and 500-bed patient-care facility was activated. While a substantial number of the health and safety requirements for hospital and laboratory operations were anticipated during the period of planning and designing the new facility, other needs did not become evident until later, when new procedures involving patient care and laboratory research were introduced by the Institutes.

Various environmental health-associated services were instituted to meet these needs, and a review of these services indicates they fall into three broad areas of concern: (1) patient-care environments, (2) laboratory environments, and (3) extramural environments. There are, of course, many overlapping concerns among these areas. Improvements and services aimed at one of them will almost invariably exert some effect on the others. This interaction, sometimes beneficial and sometimes adverse, is one of the most

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interesting and challenging aspects of the work of environmental health specialists in medical research centers.

PATIENT-CARE ENVIRONMENTS

How to cope with patient and employee infections of hospital origin is a problem claiming the time and attention of many medical and paramedical groups in medical research centers and the hospitals associated with them. Currently various regulations are being placed in effect as aids in helping check the incidence of intramural infections. At the same time a variety of proprietary products and materials have been proposed to help minimize conditions which may be conducive to the development of infections. Each of these items has specific bactericidal properties, but they pose real problems concerning the rationale for their selection and use by medical, nursing, housekeeping, and maintenance engineering departments in the hospital. One environmental health service which can be provided through a group organized for such purposes is a program to help these different hospital departments in selecting proper sanitation materials. This group can be helpful in giving counsel when additional patient-care services for the control of infections are being proposed. Typical problems which will be encountered include evaluating the bactericidal properties of laundry rinses and of special paints or floor-maintenance materials, and, more fundamentally, determining whether their use is justifiable in the first place. This suggests, too, the need for readily available laboratory facilities for those groups having environmental health responsibilities. Frequently simple laboratory procedures can be devised to check the validity of manufacturers' claims for their products under actual conditions of hospital or laboratory use. With minor modifications many of the sampling and testing procedures used in water, milk, and food sanitation practices are generally applicable to this specialized area of sanitary controls, and their use is no novelty to environmental health practitioners.

One subject which has been documented to some extent, and which has stirred interest for further possible correlation, is the influence of environmental conditions on the incidence of post-

operative patient infections. This heading involves studies of such conditions as the relation of infections of coagulase-positive-staphylococcus origin among the surgical team members, the number of surgical team members, and the tempo of their activity during a surgical operation. How these factors may affect the incidence of postoperative infections traceable to either patient or personnel carriers of the causative organisms will require the active participation of an environment-oriented service group. Another example of a related type of environmental health service covers the acquisition of data to determine what constitutes normal conditions and regular monitoring of the bacterial quality of operating-room air. Comparisons of results can then be made among different operating rooms. Over an extended period of time any significant differences in infection rates and air quality can be detected. Once having established "norms" for air quality, the basis for and the effects of modifying various factors, including surgical wearing apparel or cleaning procedures, can be more carefully evaluated. There are other definite, though intangible, values to be gained from surveillance programs of this type. Excessively high bacteria counts from air samples can serve as a spur for a voluntary re-examination on the part of the hospital staff, and surgical staff in particular, of a whole gamut of factors possibly relating to surgical infections.

LABORATORY ENVIRONMENTS

One example of a research-connected "improvement" which occasionally produces a health and safety hazard can be found in the use of ultraviolet light in microbiological laboratories. Difficulties which, for a variety of reasons, some laboratories experience with mold or bacterial overgrowths in plate cultures can be overcome by the strategic placement of ultraviolet fixtures. Installations of a permanent nature can be planned to avoid skin and eye hazards from radiation. Problems are most likely to develop where ultraviolet fixtures are directly purchased by individual investigators and then improperly placed in the laboratory.

The group responsible for environmental health in the medical

center may anticipate and solve such problems by providing an equipment and materials purchase-approval service. Not only can such potential hazards be intercepted before they develop into real problems, but assistance frequently can be given to the research group on the problem which precipitated the purchase request. This same approval service can be useful, too, in reviewing, for example, the purchase of such items as insecticides. The gradual adaptation of insect species to various insecticides is a problem in many laboratories. Here, the group charged with environmental health responsibilities may wish to restrict insecticide purchases to certain formulas for as long as they retain some measure of effectiveness, before switching to new ones.

Another interesting illustration of the double-edged sword of improvements which can develop into hazards is in coping with gross spills of pathogenic bacterial cultures. One approach to handling accidents of this type is to seal off the affected area and utilize suitable disinfectant space sprays. One highly promising material which was considered for this purpose demonstrated carcinogenic properties when tested on laboratory animals. Such a case points up the need either to staff these environmental health programs with personnel having a variety of professional backgrounds or to have ready access to the services of other specialists who can help weigh the relative risks which the use of such materials might involve.

It is certainly desirable to extend the equipment and materials purchase-approval service to include such items as ozone-producing apparatus, deodorants, and bacteriological and chemical fume hoods. This service is in no way intended to supplant laboratory inspections or building surveys, but it does provide advance intelligence on changes in research programs, which inspections and surveys would not encounter until later, when operations had already begun.

One of the most significant factors in medical research is the rapidity with which an apparently fixed course in a research program can change. Keeping pace with such developments will tax the resourcefulness of the environmental health services. This is especially true in medical centers where a radiation committee has

been formed to administer the Atomic Energy Commission's requirements for a general license for the use of radioisotopes. Here an individual or group, professionally trained and oriented in radiological health procedures, can be employed successfully as a service arm of the radiation committee. Among the services offered by such a group, it is desirable to include a review of radioisotope requisitions for approval prior to purchase. This group may also be required to check the safety of proposed experiments, using "dry runs" in advance of the actual use of radioisotopes. This rigid degree of agent control is more difficult to exercise where highly toxic chemical compounds or pathogenic microorganisms are used. Yet the demonstrated success of such a centralized radioisotope-control program suggests the potential usefulness of a "dry run" experimental-procedure-review service for investigators who will use other hazardous agents.

Quite a different group of employee-associated problems, particularly in biological research involving the use of animals, is exemplified by individuals who are allergic to hair and other protein materials of animal origin. Where employees are not called on to work directly with animals, an environmental health service can, through the exercise of isolation principles, effectively reduce employee contacts with these antigenic materials.

Other problems stem from the varying environmental tolerance levels of employees in seemingly adequate office and other work environments. Complaints, usually from office employees, of dizziness, nausea, and other symptoms, allegedly due to odors, "stuffiness," noise, or other factors, are among the most elusive problems. This is especially true if there are psychologic implications. Yet these matters are very real to the employees involved, and environmental health programs can supply much-needed reassurance, if not relief, to the affected employees by careful investigation.

Because of their specialized training personnel in environmental health programs may be expected to provide important services in areas which have little or no direct connection with patient or employee health or well-being. These activities are generally of quality control and include the testing of the operation of water stills and demineralizers and similar services in connection with

machines for cleaning laboratory glassware and equipment for washing animal cages—equipment involving water-treatment processes and dishwashing technology.

Two highly interesting developments are enjoying an increasing popularity in the laboratory-animal picture for medical research. One of these is the specific-pathogen-free animal. The other is the "germfree" animal. The latter is still a laboratory rarity, with only a few medical research institutions using such animals as yet. These developments, based on the same isolation principles, disinfectants, and cleaning procedures applicable to the prevention of infection in hospital patients are also of use to veterinarians and animal husbandrymen.

EXTRAMURAL ENVIRONMENTS

The problem of making the medical research center a good neighbor in its community requires constant vigilance, in which an environmental health group can furnish substantial help. Laboratory-animal odors and sounds, and the disposal of liquid, solid and gaseous wastes are among the most conspicuous problems to be dealt with.

Improper solid-wastes storage or disposal practices, as one example, can develop into a full-blown nuisance. Further, where infectious disease studies are involved, the environmental health services must make sure that procedures for handling infectious wastes are reliable, not only for the protection of patients and staff but also of the surrounding community. Here are a whole series of interrelated problems with which environmental health services can be of real assistance to housekeeping, engineering, and other operating groups.

The maintenance of employee-radiation-exposure and environmental-conditions records are illustrations of the dual intramural and extramural interests of environmental health service groups. One of these is, of course, the protection of the patient and the employee. The other is to monitor the environs of the research center in the event of any possible legal involvements due to real or inferred damages from radioisotope disposal.

SUMMARY

This discussion attempts neither to outline the complete elements of an environmental health program oriented toward a medical research center nor to include all the specific services which can be provided. Rather, it has been aimed toward uncovering some of the characteristics of medical research operations and how they may influence the environmental health serv..es offered. The success of such programs seems largely dependent on how well they can work through existing administrative procedures or help institute realistic new ones in medical research centers.

Prevalence of Organic Heart Disease in Colorado Males*

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Studies of the prevalence and distribution of rheumatic heart disease (RHD) in various populations of the United States have been previously reported. Those involving military installations [1] and those based on mortality rates [2] have indicated an unusually high incidence in Colorado and other states of the Rocky Mountain region. However, in a state-wide clinical survey of sixth-grade children in Colorado in 1950–1951, Maresh, Dodge, and Lichty [3] found prevalence rates of 0.67 per cent for definite RHD and 0.56 per cent for suspected RHD, rates not strikingly different from those in New England and Middle Atlantic regions studied.[4]

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[1] W. P. Holbrook, The Army Air Force's Rheumatic Fever Control Program, *J.A.M.A.*, *126:* 84–87, 1944.

[2] G. Wolff, Death Toll from Rheumatic Fever in Childhood, *J.A.M.A.*, *145:* 719–724, 1951.

[3] G. J. Maresh, H. J. Dodge, and J. A. Lichty, Incidence of Heart Disease Among Colorado School Children, *J.A.M.A.*, *149:* 802–805, 1952.

[4] R. W. Quinn, S. J. Liao, and J. P. Quinn, An Environmental and Sociological Study of Rheumatic Heart Disease, *Amer. J. Public Health*, *40:* 1285–1295, 1950; J. R. Paul, *Rheumatic Fever in New Haven* (Lancaster, Pa.: Science Press, 1941), and J. R. Paul, The Epidemiology of Rheumatic Fever and Some of Its Public Health Aspects, *Metropolitan Life Ins. Co. Bull.*, 1943.

The difficulties in making comparisons from reports such as these are magnified by the differences in study techniques and population samples used, as well as by the probability, represented by the dates of the various studies, that the incidence of RHD has been dropping over the past three decades.

At a recent Colorado conference on streptococcal infection, attended by representative investigators of this problem in civilian and military populations, Colonel L. C. Kossuth, Surgeon, North America Air Defense Command, suggested that the prevalence of diagnosed RHD in candidates for Selective Service might permit a more valid comparison among different states and areas in this respect. It would have the further advantage of involving an age group comparable to that of military recruits. The present study was undertaken with these suggestions in mind.

METHOD

This study was limited to examination of medical records of the Selective Service in Colorado. Organic heart disease of any type in a man being considered for induction to military service by the Selective Service System is sufficient to disqualify him. Men are interviewed, and may be examined, by physicians working for the local draft boards. If no obvious disqualifying defect or illness is found at the time, such as a missing limb, diabetes, or documented organic heart disease, candidates are given a thorough preinduction physical examination. In cases of questionable cardiac diagnosis aids such as electrocardiograms, x-ray, and cardiac consultation are commonly employed. Records of the local physician interview (Form DD 47) and preinduction physical examination (Form 88) are filed with the state Selective Service Office for those men who have been disqualified by either procedure. These records supply the diagnosis and/or a description over the signature of the responsible physician.

The records used in this study were those of Colorado men called for military service between July 1951 and July 1959 but considered disqualified. Included in this group are those rejected for mental or psychiatric reasons. These records were examined for the prevalence and types of organic heart disease. The annual

and total number of men interviewed or examined and the number rejected over the eight-year period were noted. Of those rejected, the proportions with various types of organic heart disease were determined.

Estimates of the Colorado male population in this age group (18–26)[5] for each year were obtained to give the proportional size of the sample.

In all cases the diagnoses or cardiac findings of the examining physicians were accepted in this review. The following categories of organic heart disease were used:

1. RHD: cases for which the examining physician made the diagnosis or gave a cardiac description including typical signs of rheumatic heart disease.
2. Suspected RHD: cases for which the physician made no definite diagnosis, but described signs *suggestive* of RHD.
3. Congenital heart disease.
4. Heart disease of undetermined type: cases for which the physician used diagnosis of "heart disease" but neither specified the type nor gave a sufficient description of signs for classification.

Since a physician-verified attack of rheumatic fever occurring within the two years preceding examination is sufficient for rejection, the number of men with this diagnosis was also noted.

RESULTS

As shown in Table 1 over the eight-year period 25,794 men were interviewed and/or examined for Selective Service, averaging approximately 3 per cent of the estimated male population of Colorado in that age group per year. Of this total, 8,852 (34 per cent) were rejected.

Table 2 presents the prevalence of heart disease by types. In each case the diagnosis or medical opinion listed was sufficient for rejection from military service. Of the men examined from July 1951 to July 1959, 578 (2.23 per cent) were rejected because of some form of "heart disease." In this group the ratio of congenital heart disease to RHD was approximately one to six. In

[5] Based on the U.S. census and on projections made by E. L. Richie, Records and Reports Section, Colorado State Department of Public Health.

Table 1. Colorado males examined and rejected by selective service July 1951–July 1959

Year	Total males in Colorado (age 18–26)*	Total examined	% examined	Total rejected	% rejected
1951†	95,000	1,144	1.2	422	36.8
1952	96,000	6,335	6.6	2,464	39.0
1953	97,000	6,996	7.2	1,853	26.5
1954	98,000	1,766	1.8	667	37.8
1955	99,000	1,430	1.4	489	34.0
1956	102,000	1,570	1.5	543	34.5
1957	106,000	2,202	2.1	832	37.8
1958	109,000	3,423	3.1	1,220	35.7
1959†	113,000	928	0.8	362	39.0
Totals		25,794	av. 2.9	8,852	av. 34.3

* See note 5.
† Six-month period.

Table 2. Prevalence and types of heart disease in Colorado rejectees, July 1951–July 1959

Diagnosis	No. of cases	% of total examined
RHD	354	1.37
Diagnosis of RHD	297	1.15
Description of RHD	57	0.22
Description interpreted as suspected RHD	115	0.44
Congenital heart disease	57	0.22
Heart disease of undetermined type	52	0.20
Total rejected for "heart disease"	578	2.23

this report RHD is used to represent a combination of the categories "diagnosis of RHD" and "description of RHD" as shown in Table 2.

Of the total number interviewed and/or examined, there were 71 men (0.8 per cent of the 8,852 rejected) rejected because of a history of acute or recurrent rheumatic fever. To qualify for this category, a candidate has no cardiac abnormality at the time he reports for Selective Service examination, but he does have a documented history of rheumatic fever within the previous two years. These men are included only in Table 1.

Table 3 shows the annual prevalence of RHD. In spite of the variation in numbers of men interviewed and/or examined from

Table 3. Rheumatic heart disease (RHD) in Colorado males as determined by Selective Service System, July 1951–July 1959

Year	Total examined	No. with RHD	% with RHD
1951*	1,144	27	2.35
1952	6,335	97	1.53
1953	6,996	96	1.37
1954	1,766	24	1.36
1955	1,430	13	0.92
1956	1,570	19	1.21
1957	2,202	23	1.04
1958	3,423	46	1.34
1959*	928	9	0.97
Totals	25,794	354	1.37

* Six-month period.

year to year (reflecting changes in military manpower needs) the percentage of total rejections (Table 1) and RHD rejections (Table 3) remained relatively constant.

Table 4 compares the findings in this study with similar ones from the 1950–51 state-wide study of Colorado sixth-grade chil-

Table 4. Comparison of RHD and congenital heart disease in Colorado school children in 1950–1951 with data of the current study

Diagnosis	% of 1950–51 6th-grade children	% of 1951–59 males aged 18–26
RHD	0.67	1.37
Congenital heart disease	0.27	0.22
Total	0.94	1.59

dren.[6] In this table cases of unknown type of heart disease and cases in which the diagnosis is "suspected RHD" are excluded. It is interesting to note that the values for prevalence of congenital heart disease in these two studies are quite similar, in contrast to those for RHD.

[6] Maresh, Dodge, and Lichty, *op. cit.*

DISCUSSION

As mentioned earlier, the problem of comparing the prevalence of rheumatic heart disease in different parts of the country has been most satisfactory in military populations because of some standardized factors, such as type of examination and type of population. A recent report by Sandidge *et al.* contains the 1956–1957 prevalence of RHD in students entering college, using a rather wide geographic scattering of colleges but assigning the student to his home state for purposes of comparison of prevalence.[7] The value of 1.11 per cent for Colorado residents in that study is in general agreement with the 1.37 per cent in the present study and the years of the two studies are roughly comparable. One might expect a lower incidence of RHD in the college population than in that for Selective Service because of the more favored socioeconomic level of young people who go to college.

Reference should be made to another attempt to study heart disease in Selective Service recruits by Shaffer.[8] This study was done in 1945, approximately ten years earlier than the present one, and hence is not quite comparable. For men from the "central states region" Shaffer found 1 per cent of 25,000 candidates to have RHD.

The higher prevalence of RHD in Colorado Selective Service candidates (1.37 per cent) than in sixth-grade Colorado school children (0.67 per cent) could readily be accounted for by the recognized tendency of rheumatic fever and heart disease to develop after the age of twelve or thirteen. Such a factor would not operate in the case of congenital defects, though some cases of congenital heart disease are diagnosed for the first time in the adolescent period.

This study is reported with the hope that comparable studies may be made in other states over a similar period of years. Such studies might offer further information regarding the distribution of rheumatic heart disease in young adults in the United States.

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[7] R. P. Sandidge, Jr., A. L. Nielsen, and M. A. Evans, Rheumatic Fever and Rheumatic Heart Disease among College Freshmen, *Student Med.*, *8:* 122–136, 1959.

[8] C. F. Shaffer, The Incidence of Rheumatic Valvulitis in Military Induction Examinations with Special Reference to Cardiac Evaluation, *Texas J. Med.*, *41:* 300–303, 1945.

They would also offer an opportunity to compare prevalence rates under the conditions of military and civilian life. The data are easily obtainable, the criteria for rejection are determined at the national level, and the age and proportion of men required to be examined in each state are the same for any one year. A few cases of rheumatic (and/or congenital) heart disease might be missed in those men who do not receive a careful physical examination but are rejected because of some obvious defect at the time of the initial physician interview. A more important difficulty in obtaining reliable comparative data comes from the lack of more precise criteria for diagnosis. This results in variation among physicians in making a diagnosis or declaring a rejection. The variation occurs not only among the various local communities and states, but also from year to year. The increased use of appropriate diagnostic tests and the services of physicians specially trained in cardiac diagnosis would, of course, be highly desirable but perhaps not practical on a nationwide scale. This same difficulty has existed in the studies of heart disease in school children, though in many instances the services of cardiologists have been used in clinical surveys.

SUMMARY

A study was made to determine the prevalence of organic heart disease among the 25,794 Colorado young men examined or interviewed by physicians for Selective Service from July 1951 to July 1959. The method involved examination of the Selective Service records of all men rejected during this period. A total of 578 (2.23 per cent) men were rejected because of "heart disease."

Of these, 354 (1.37 per cent) had either the diagnosis or a description of typical findings of rheumatic heart disease (RHD). Fifty-seven (0.22 per cent) had a diagnosis of congenital heart disease.

The incidence of rheumatic heart disease in this population appeared to be fairly constant from year to year and was in rather close agreement with that reported in other studies among similar age groups.

The possible values of extending this study on a national scale are suggested.

Book Review

Medical Care of the Adolescent. J. R. Gallagher. New York: Appleton-Century-Crofts, 1960. 384 pages. $10.00.

This book is about adolescents and their illnesses, injuries, and personality difficulties. Its purposes, as stated in the preface, are: "1, to discuss those ailments which are common in adolescence or which present some peculiarity during that period of life; *and* 2, to emphasize the importance of taking adolescents themselves, their characteristics, their hopes and fears into account, and of treating *them*, not just their illnesses." Adolescents *are* different and the physician who cares for them must think about them in different terms than he does about little children or adults.

Dr. Gallagher, who is well qualified from his long years of pioneering in the field of adolescent medicine, brings together a great deal of pertinent material, some from standard textbooks and some from less readily available sources. To this he adds much from the wealth of his own observations and experience, and the whole is oriented to the adolescent and emphasizes that which is especially relevant to medical care of the adolescent. Especially valuable are the sections: "How Adolescents Differ," "Comments on the Adolescent," "Talking to Adolescents," "Developmental Status," "Growth and Development during Adolescence," and "Epilepsy."

In addition to specific information to aid in gaining an understanding of adolescents, Dr. Gallagher provides many tips which will help the physician in developing a relationship with his patients which is mutually satisfactory and rewarding. Such a relationship is the key to success in the management of the medical and psychological problems of this age group.

Numerous references on specific subjects are provided at the end

of each chapter in addition to the list of more comprehensive references at the end of the book.

One might wish that preventive medicine had received more emphasis. Nevertheless, this book will be of great value to physicians and others who work with boys and girls from ages twelve to twenty-one.

RALPH W. ALEXANDER

Cornell University

Abstracts of Current Literature

Brashear, Robert G. Medical Problems in Organization of an Athletic Program, *Postgrad. Med., 28:* 360–63, Oct. 1960.

Dr. Brashear emphasizes that the school administrator, the head athletic coach, the team physician, and the team trainer make up a team which is the heart of an athletic organization. He then goes on to discuss the scope of responsibility of each.

He classifies the duties of the team physician in three broad categories: (1) as consultant, which requires knowledge available to all physicians; (2) as active participant, which includes preseason physical examinations and the need to be available during athletic contests and practice sessions, and for which the importance of the "athletic attitude" is emphasized; and (3) as teacher, for both the trainers and the coaching staff.

He concludes by pointing out the importance and value of the National Athletic Trainers Association and how it has helped raise the standards of athletic training.

J. M. Miller

Indiana University

Hoagland, R. J. The Clinical Manifestations of Infectious Mononucleosis: A Report of Two Hundred Cases, *Amer. J. Med. Sci., 240:* 21–29, July 1960.

The clinical manifestations of infectious mononucleosis as personally observed by the author in two hundred cases forms the basis for this report. All patients had characteristic blood smears and heterophil antibody reactions of infectious mononucleosis

using the adsorption technique. Of the 200 patients, 191 were seventeen to twenty-nine years of age, seven were younger than seventeen, two were aged thirty-one and thirty-five.

The clinical picture tended to be rather uniform, with all patients having malaise and enlargement of lymph glands. Only 2.5 per cent did not have fever while under observation, and 83 per cent had sore throat. Jaundice and skin rashes were rare, occurring in 8 and 3 per cent respectively. Complications occurred in five cases, consisting of one each of spontaneous rupture of the spleen, paralysis of the facial nerve, mild meningitis, inflammation of a salivary gland, and complete atrioventricular heart block. All patients recovered without sequelae except for the persistence of electrocardiographic evidence of atrioventricular block in the latter case, although the patient was free from symptoms and capable of strenuous exertion.

From these observations the author suggests that three types or syndromes of infectious mononucleosis occur: pharyngeal (80 per cent), typhoidal (12 per cent), and icteric (8 per cent). He did not observe prolonged convalescence or "chronic or recurrent mononucleosis." He disagrees with the use of the word "protean" to describe the manifestations of infectious mononucleosis and gives reasons for his disagreement.

RALPH W. ALEXANDER

Cornell University

Jackson, G. G., H. F. Dowling, T. O. Anderson, L. Riff, J. Saporta, and M. Turck. Susceptibility and Immunity to Common Upper Respiratory Viral Infections—The Common Cold, *Ann. Int. Med.*, *58:* 719–738, Oct. 1960.

This is a report of controlled studies of experimental challenge of volunteer subjects with uncharacterized filtrable agents obtained from the nasal secretions of persons having naturally acquired colds. As many as seventy different viruses have been recovered from the respiratory secretions of persons suffering from the mildest form of coryza to the more severe infections such as influenza and virus pneumonia, but probably the majority of cases of the common cold are caused by unidentified viruses some of which are

referred to as NS agents. These viruses, under experimental conditions, cause illness in volunteers which is similar to naturally occurring common colds. A few subjects were resistant to both natural and experimental infections, and some who were especially prone to naturally acquired colds developed coldlike symptoms from intranasal instillation of noninfectious salt solution. Chilling, exposure to frigid temperature, loss of sleep, and fatigue did not significantly increase susceptibility to experimental infection with cold viruses. In girls susceptibility was influenced by the menstrual cycle, with decreased susceptibility during the menstrual flow and increased susceptibility in the postmenstrual phase. Evidence was obtained that there is an antibody response, with immunity demonstrated to rechallenge with the specific virus but not to other cold viruses. The observations are interpreted by the authors to indicate that the common cold is caused by any of a large number of viruses and that the frequent occurrence of colds is not due to a failure to develop a long-lasting immunity but rather due to infection with a new (to the individual) virus. This suggests that there is small likelihood of a vaccine which will prevent the majority of colds.

RALPH W. ALEXANDER

Cornell University

Mehne, E. K. Delayed Rupture of the Spleen, *Amer. Practic., 11:* 137–141, Feb. 1960.

Blunt trauma to the abdomen or chest, vaguely termed "internal injuries" may result in delayed rupture of the spleen. Delayed rupture occurs in approximately one out of every six cases in which the spleen is injured. Delayed rupture of the spleen may be defined as the onset of secondary hemorrhage after an interval of symptomatic relief following the initial injury. The actual mechanism is unknown. It is theorized that in the initial contusion the capsule remains intact but there is slow, intracapsular hemorrhage until sufficient pressure is built up to rupture the capsule. Another theory is that the initial laceration to the spleen is sealed off by omentum or other contiguous structures,

and upon ambulation or elevation of blood pressure this mechanism fails, resulting in further bleeding with rupture.

The latent period is less than one week in 50 per cent and less than two weeks in 75 per cent of the cases. Therefore the patient should be closely observed for two weeks. It is interesting that in adults about one out of five spleenic ruptures is associated with rib fractures.

During the latent period the only outstanding symptom is vague abdominal pain. It is never localized or severe but is greater in intensity than one would expect from residual posttraumatic aches and pain. Its persistence for a week or more should arouse suspicion of a delayed rupture.

The actual rupture of the spleen produces a pattern of fulminating hemorrhage and shock. Strangely enough, the abdomen rarely shows signs of peritoneal irritation such as rigidity or tenderness. Leukocytosis, greater than 12,000 cu. mm. is more frequently observed than anemia. Daily white blood count and differential may be the most valuable test in following suspicious posttraumatic cases. Repeated x-rays rarely yield more information than simple abdominal examination of shifting left upper abdominal quadrant dullness.

It should be emphasized that associated injuries very frequently dominate the initial pattern and mask the symptoms of impending ruptures. The three most common associated conditions are injured kidney, fractured rib, and pneumothorax.

It is ideal to remove the spleen surgically during the latent period and therefore obviate rupture.

VIRGINIA E. KVINGE

Northwestern University

Tumulty, P. A. The Approach to Patients with Functional Disorders, *N. Engl. J. Med., 263:* 123–128, July 1960.

Functional or emotional disorders are common, varying in different types of practice from 25 per cent to 80 per cent of patients who consult a physician. The physician who is uninterested in this type of disorder cannot be effective either as a diagnostician

or as a therapist. To determine exactly whether an illness is organic or functional can be very difficult, and the hallmark of the mature clinician is to reach the proper balance, avoiding "shooting the works" diagnostically yet providing for the reasonable exclusion of organic disease. Great care must be used to avoid diagnostic procedures such as exploratory operations, lumbar puncture, myelography, and so on, which often lead to intensification of existing symptoms or the development of new ones. These and many other pitfalls in the diagnosis and treatment of functional disorders are clearly pointed out by Dr. Tumulty. He stresses the importance of reaching a definite diagnosis before giving any medication, even though a period of observation may be necessary until the evolution of the disease reveals its emotional or organic nature. Once the diagnosis has been made, the physician must be straightforward and uncompromising in his approach to treatment, for unless the patient is divested of his conviction that he may have organic disease he is not likely to recover. The physician who is interested in rehabilitating patients with functional illness can find a great deal of help in this presentation.

RALPH W. ALEXANDER

Cornell University

Wilkins, Earl, Jr., Athletic Injuries—Thoracic Area, *J. National Athletic Trainers Assoc.*, Spring 1960, pp. 11–16.

A review of the above article is prompted by a desire to direct to the attention of the team physician, as well all others interested in handling the medical aspects of sports, that in the Journal of the N.A.T.A. (published three times a year) there may be found articles dealing with the practical day-to-day problems that confront both the team physician and the trainer. Many of these articles are contributed by specialists and authorities in the field. The material is usually of current interest and value and often cannot be found in any other publication.

This article on athletic injuries to the thoracic area is taken from a tape recording of a presentation given on January 19, 1959, at a trainers meeting in Boston, and the speaker is an instructor of surgery at Harvard University. The subject matter is covered

fully—perhaps too much so, since crushing injuries with flail chest and pneumothorax due to athletic injury are both most unusual in sports. (In twelve years of experience covering all sports, this reviewer recalls no instance of the former, two of the latter.) On the other hand, considerably more attention could well have been given to injuries of the lower anterior rib cage (traumatic separation of cartilaginous attachments) as well as to sternal injuries, both of which are frequently seen in contact sports and often produce problems in diagnosis and treatment. It is surprising, too, that in the question period at the end of the presentation no one inquired as to the disability time of the simple uncomplicated rib fracture (usually negligible with proper padding and taping). Then, too, some mention should have been made of the limitations of x-rays in diagnosing rib injuries, especially the uselessness of this medium in seeking evidence of fracture or separation in the region of the cartilaginous portion of the thoracic cage.

Of more importance, this informal, anecdotal discourse on chest injuries makes for an easy-to-read lecture and a review of a subject with which the team physician comes to grips almost daily.

ALEX RACHUN

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Source: Whitehouse, F. W.: Postgrad. Med. *24*:54, 1958.

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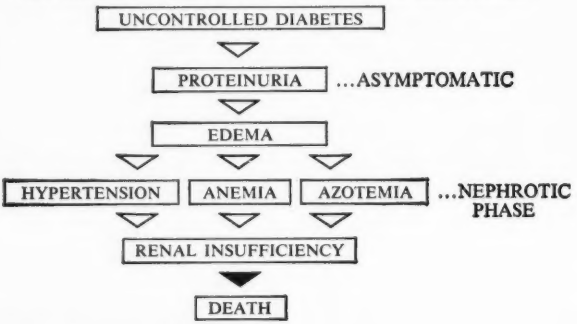

Adapted from Whitehouse, F. W.: *op. cit.*

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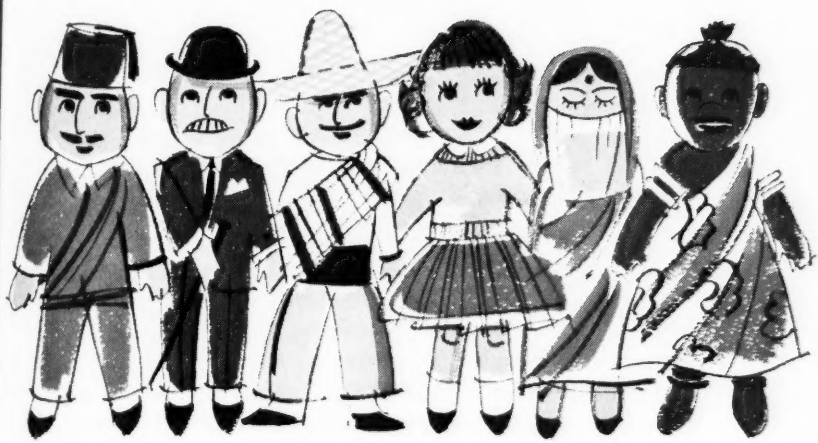

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Success of Your Student Insurance Program Depends Upon Participation

BY RICHARD F. GILMORE

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IF the value of Student Insurance can be accepted, it follows that all students should be covered. How many of your students would you estimate are covered? 10%? 20%? Ideally, it should be 60% or more.

Have you ever wondered why more students aren't covered on a voluntary participation program? I think the major cause is the difficulty in reaching the student's parents—making them aware of its availability. It is impossible to physically contact each parent to tell them about a school's Student Insurance Program, so for the sake of expediency they are usually made aware of the Student Insurance Program through the mail.

The success of this message in gaining their attention is dependent on such things as how much more "advertising" comes to them through the mail on the same day, and whether the parents or their student sons and daughters actually receive the materials (too often the student receives the letter and the insurance is disregarded).

Our experience has proven that if the parents learn of the Student Insurance plan's availability, they will enroll their child. They will do it because they recognize its value. In relation to their own group coverage, they realize Student Insurance gives their children a lot of coverage for an almost unbelieveable premium rate. Of the many phone calls and letters we receive from parents this is their general opinion, and the main reason they contact us is to inquire whether it is possible to continue the coverage when their children are transferring to another school or are graduating.

Through the years, we have promoted various methods of enrolling the maximum number of participants. We firmly believe in billing the students for the Student Insurance along with their tuition. Tuition

billing has been very successful, and has the very important effect of bringing Student Insurance to the attention of the parents.

Why isn't tuition billing used more extensively? Because it requires a small amount of additional bookkeeping at the time of enrollment! Before a school administrator will permit tuition billing, he must be aware of the value of Student Insurance. Too often, unfortunately, he is not made aware of the need for student medical expense protection, and concludes it is not valuable enough for his business office to bother, nor would most of the parents want to see an additional cost appearing on their child's tuition bill for which he must feel is a novelty.

You could make him aware of its value. You could convince him that your students cannot afford to be without Student Insurance. You could tell him of a few cases where your students incurred some truly big medical expenses. You could cite, perhaps, a few students who are not going to get their degrees because they and their parents were so broke after paying the medical bills that they could not afford to return to school.

Think about it! We have a mutual concern to see the greatest percentage of the student group covered; we know its needs. We both gain. Yours is the satisfaction of knowing far fewer students will face financial strain in the case of a serious accident or sickness. We gain because with a greater portion of the entire group covered, the underwriting factors involved in a Student Program stabilize. With the greatest possible number of students covered and the underwriting elements in a more stable position, the premium rates can often be made less, or the benefits increased.

I propose that we cooperate to promote a program of getting the most students covered. Ideally, the insurance should be billed to every student with his tuition. However, if he has comparable or better insurance, either with an individual policy or as a dependent under his parent's policy, he should not be required to take the Student Insurance coverage.

I am certain that few parents would object to this proposal. In fact, I am certain most parents would appreciate the school's concern over their children's health which is represented by making the program a real part of its facilities, and providing valuable medical expense protection.